



# **STIC Search Report**

**EIC 1700**

**STIC Database Tracking Number: 443702**

**TO: Camie Thompson**

**Location: 10D28**

**Art Unit : 1774**

**February 1, 2005**

**Case Serial Number: 10/617397**

**From: Usha Shrestha**

**Location: EIC 1700**

**REMSEN 4B28**

**Phone: 571/272-3519**

**usha.shrestha@uspto.gov**

## **Search Notes**

The search result/History has L40 answer set with 65 answers. However, due to the large number of hit Registry Number and hit structures on the answer set the final print turned out to be 928 pages with all structures and Registry Numbers.

## SEARCH REQUEST FORM

Scientific and Technical Information Center

Requester's Full Name: Camie S. Thompson Examiner #: 79244 Date: 1/25/05  
Art Unit: 1774 Phone Number 301 21530 Serial Number: 101617397  
Mail Box and Bldg/Room Location: 10028 Results Format Preferred (circle): PAPER DISK E-MAIL

*Remsen*  
If more than one search is submitted, please prioritize searches in order of need.

\*\*\*\*\*

Please provide a detailed statement of the search topic, and describe as specifically as possible the subject matter to be searched. Include the elected species or structures, keywords, synonyms, acronyms, and registry numbers, and combine with the concept or utility of the invention. Define any terms that may have a special meaning. Give examples or relevant citations, authors, etc, if known. Please attach a copy of the cover sheet, pertinent claims, and abstract.

Title of Invention: Organic Electroluminescence Device + OLE medium  
Inventors (please provide full names): Masahide Matsuura; Masakazu Funahashi;  
Kenichi Fukuoka; CHISHIO HOSOKAWA  
Earliest Priority Filing Date: 7/19/2002

\*For Sequence Searches Only\* Please include all pertinent information (parent, child, divisional, or issued patent numbers) along with the appropriate serial number.

*Please do a search on claims*

*1-17*

*Thanks.*

*4170-FF-011-04-8A*

STAFF USE ONLY		Type of Search	Vendors and cost where applicable
Searcher: <u>Usha Shrestha</u>	NA Sequence (#) _____	STN <u>644-96</u>	
Searcher Phone #: _____	AA Sequence (#) _____	Dialog _____	
Searcher Location: _____	Structure (#) <u>1</u>	Questel/Orbit _____	
Date Searcher Picked Up: <u>1/31/05</u>	Bibliographic _____	Dr.Link _____	
Date Completed: <u>2/1/05</u>	Litigation _____	Lexis/Nexis _____	
Searcher Prep & Review Time: <u>200</u>	Fulltext _____	Sequence Systems _____	
Clerical Prep Time: <u>200</u>	Patent Family _____	WWW/Internet _____	
Online Time: <u>240</u>	Other _____	Other (specify) _____	





# STIC Search Results Feedback Form

**EIC17000**

Questions about the scope or the results of the search? Contact *the EIC searcher or contact:*

Kathleen Fuller, EIC 1700 Team Leader  
571/272-2505 REMSEN 4B28

## Voluntary Results Feedback Form

- I am an examiner in Workgroup:  Example: 1713  
➤ Relevant prior art **found**, search results used as follows:

- ☐ 102 rejection
- ☐ 103 rejection
- ☐ Cited as being of interest.
- ☐ Helped examiner better understand the invention.
- ☐ Helped examiner better understand the state of the art in their technology.

*Types of relevant prior art found:*

- ☐ Foreign Patent(s)
- ☐ Non-Patent Literature  
(journal articles, conference proceedings, new product announcements etc.)

➤ Relevant prior art **not found**:

- ☐ Results verified the lack of relevant prior art (helped determine patentability).
- ☐ Results were not useful in determining patentability or understanding the invention.

Comments:

Drop off or send completed forms to EIC1700 REMSEN 4B28



## CLAIMS

1. An electroluminescence device comprising a pair of electrodes and a layer of an organic light emitting medium disposed between the pair of electrodes, wherein the layer of an organic light emitting medium comprises:

(A) at least one compound selected from substituted and unsubstituted arylamines having 10 to 100 carbon atoms, and

(B) at least one compound selected from:

anthracene derivatives represented by following general formula (I):



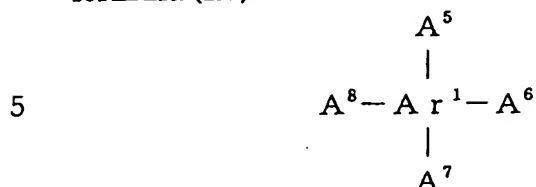
wherein  $A^1$  and  $A^2$  each independently represent a substituted or unsubstituted monophenylanthryl group or a substituted or unsubstituted diphenylanthryl group and may represent a same group or different groups, and L represents a single bond or a divalent bonding group,

anthracene derivatives represented by following general formula (II):



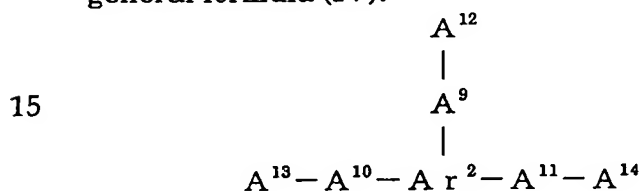
wherein An represents a substituted or unsubstituted divalent anthracene residue group,  $A^3$  and  $A^4$  each independently represent a substituted or unsubstituted aryl group having 6 to 40 carbon atoms, at least one of  $A^3$  and  $A^4$  represents a substituted or unsubstituted monovalent condensed aromatic ring group or a substituted or unsubstituted aryl group having 10 or more carbon atoms, and  $A^3$  and  $A^4$  may represent a same group or different groups,

spirofluorene derivatives represented by following general formula (III):



wherein  $Ar^1$  represents a substituted or unsubstituted spirofluorene residue group,  $A^5$  to  $A^8$  each independently represent a substituted or unsubstituted aryl group having 6 to 40 carbon atoms,

compounds having condensed rings represented by following general formula (IV):



wherein  $Ar^2$  represents a substituted or unsubstituted aromatic ring group having 6 to 40 carbon atoms,  $A^9$  to  $A^{11}$  each independently represent a substituted or unsubstituted arylene group having 6 to 40 carbon atoms,  $A^{12}$  to  $A^{14}$  each independently represent hydrogen atom, an alkyl group having 1 to 6 carbon atoms, a cycloalkyl group having 3 to 6 carbon atoms, an alkoxy group having 1 to 6 carbon atoms, an aryloxy group having 5 to 18 carbon atoms, an aralkyloxy group having 7 to 18 carbon atoms, an arylamino group having 5 to 16 carbon atoms, nitro group, cyano group, an ester group having 1 to 6 carbon atoms or a halogen atom, and at least one of  $A^9$  to  $A^{14}$  represents a group having condensed aromatic rings, and metal complex compounds.

2. An electroluminescence device comprising a pair of electrodes and a

layer of an organic light emitting medium disposed between the pair of electrodes, wherein the layer of an organic light emitting medium comprises:

(A) at least one compound selected from substituted and  
5 unsubstituted arylamines having 10 to 100 carbon atoms, and

(B) at least one compound selected from:

anthracene derivatives represented by following general  
formula (I):



10 wherein  $A^1$  and  $A^2$  each independently represent a substituted or unsubstituted monophenylanthryl group or a substituted or unsubstituted diphenylanthryl group and may represent a same group or different groups, and L represents a single bond or a divalent bonding group, and

anthracene derivatives represented by following general  
15 formula (II):



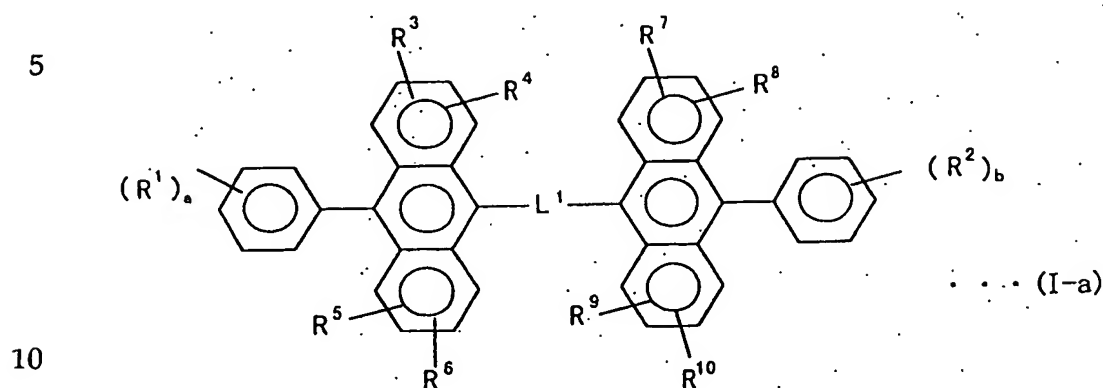
wherein An represents a substituted or unsubstituted divalent anthracene residue group,  $A^3$  and  $A^4$  each independently represent a substituted or  
unsubstituted aryl group having 6 to 40 carbon atoms, at least one of  $A^3$   
20 and  $A^4$  represents a substituted or unsubstituted monovalent condensed aromatic ring group or a substituted or unsubstituted aryl group having 10 or more carbon atoms, and  $A^3$  and  $A^4$  may represent a same group or different groups.

25 3. An electroluminescence device according to any one of Claims 1 and 2, wherein the anthracene derivative represented by general formula (I) of

component (B) is:

an anthracene derivative represented by following general formula

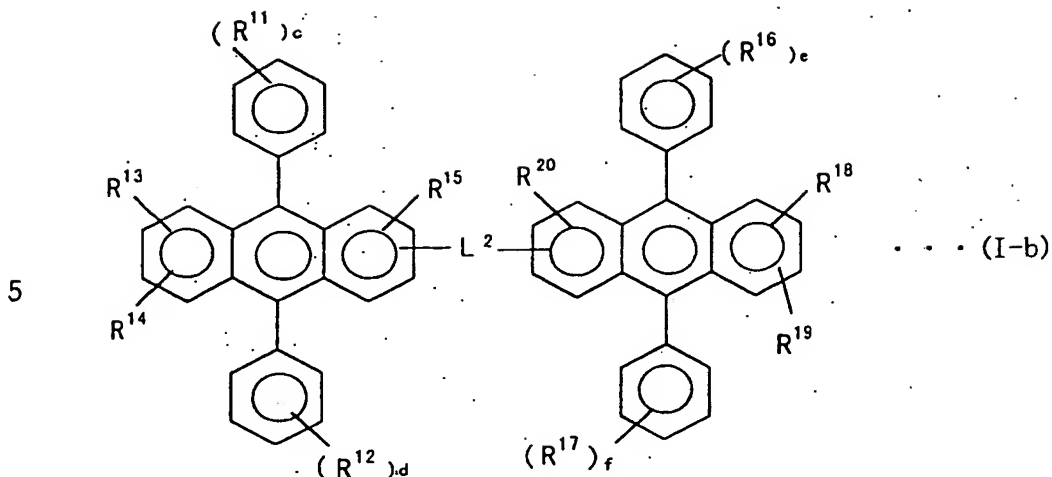
(I-a):



wherein  $R^1$  to  $R^{10}$  each independently represent hydrogen atom, an alkyl group, a cycloalkyl group, an aryl group which may be substituted, an alkoxy group, an aryloxy group, an alkylamino group, an alkenyl group, an arylamino group or a heterocyclic group which may be substituted, a and b each represent an integer of 1 to 5, atoms or groups represented by a plurality of  $R^1$  and  $R^2$  may be a same with or different from each other and may be bonded to each other to form a ring when a and b each represent an integer of 2 or greater, groups represented by combinations of  $R^3$  and  $R^4$ ,  $R^5$  and  $R^6$ ,  $R^7$  and  $R^8$ , and  $R^9$  and  $R^{10}$  may be bonded to each other to form a ring, and  $L^1$  represents a single bond,  $-O-$ ,  $-S-$ ,  $-N(R)-$ , R representing an alkyl group or an aryl group which may be substituted, an alkylene group or an arylene group, or

an anthracene derivative represented by following general formula

(I-b):



wherein  $R^{11}$  to  $R^{20}$  each independently represent hydrogen atom, an alkyl group, a cycloalkyl group, an aryl group which may be substituted, an alkoxy group, an aryloxy group, an alkylamino group, an arylamino group or a heterocyclic group which may be substituted,  $c$ ,  $d$ ,  $e$  and  $f$  each represent an integer of 1 to 5, atoms or groups represented by a plurality of  $R^{11}$ ,  $R^{12}$ ,  $R^{16}$  and  $R^{17}$  may be a same with or different from each other and may be bonded to each other to form a ring when  $c$ ,  $d$ ,  $e$  and  $f$  each represent an integer of 2 or greater, groups represented by combinations of  $R^{13}$  and  $R^{14}$ , and  $R^{18}$  and  $R^{19}$  may be bonded to each other to form a ring, and  $L^2$  represents a single bond,  $-O-$ ,  $-S-$ ,  $-N(R)-$ ,  $R$  representing an alkyl group or an aryl group which may be substituted, an alkylene group or an arylene group.

20

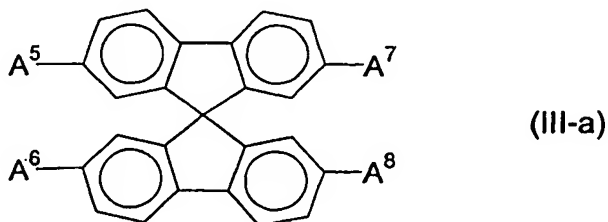
4. An electroluminescence device according to Claim 1, wherein the anthracene derivative represented by general formula (II) of component (B) is an anthracene derivative represented by following general formula (II-a):

25



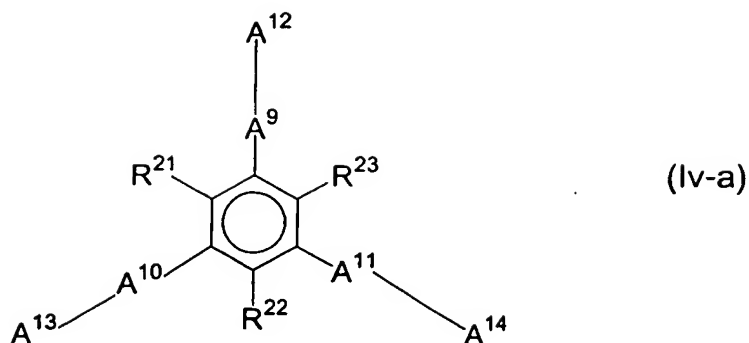
wherein An represents a substituted or unsubstituted divalent anthracene residue group and X<sup>1</sup> and X<sup>2</sup> each independently represent a monovalent residue group derived from naphthalene, phenanthrene, fluoranthene, anthracene, pyrene, perylene, coronene, chrysene, picene, diphenylanthracene, carbazole, triphenylene, rubicene, benzoanthracene, phenylanthracene, bisanthracene, dianthracenylbenzene or dibenzoanthracene, which may be substituted or unsubstituted.

5. An electroluminescence device according to any one of Claims 1 and 2, wherein the spirofluorene derivative represented by general formula (III) of component (B) is a spirofluorene derivative represented by following general formula (III-a):



wherein A<sup>5</sup> to A<sup>8</sup> each independently represent a substituted or unsubstituted biphenyl group or a substituted or unsubstituted naphthyl group.

6. An electroluminescence device according to any one of Claims 1 and 2, wherein the compound having condensed rings represented by general formula (IV) of component (B) is a compound having condensed rings represented by following general formula (IV-a):

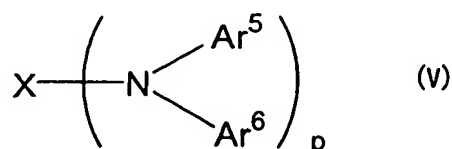


wherein  $A^9$  to  $A^{14}$  are as defined above,  $R^{21}$  to  $R^{23}$  each independently represent hydrogen atom, an alkyl group having 1 to 6 carbon atoms, a cycloalkyl group having 3 to 6 carbon atoms, an alkoxyl group having 1 to 6 carbon atoms, an aryloxy group having 5 to 18 carbon atoms, an aralkyloxy group having 7 to 18 carbon atoms, an arylamino group having 5 to 16 carbon atoms, nitro group, cyano group, an ester group having 1 to 6 carbon atoms or a halogen atom, and at least one of  $A^9$  to  $A^{14}$  represents a group having condensed aromatic rings having at least 3 rings.

10

7. An electroluminescence device according to any one of Claims 1 and 2, wherein the metal complex compound of component (B) is an aluminum chelate complex compound.

15 8. An electroluminescence device according to any one of Claims 1 and 2, wherein component (A) is at least one compound selected from arylamine compounds represented by following general formula (V):

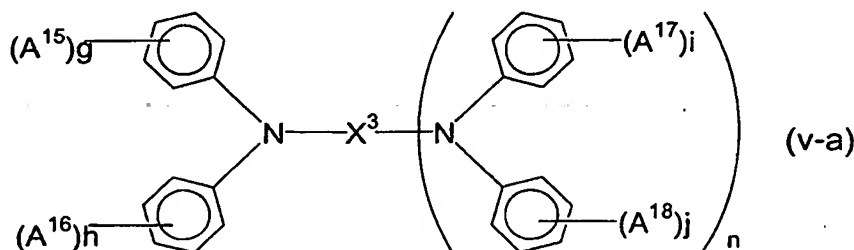




wherein  $X^3$  represents a substituted or unsubstituted condensed aromatic ring group having 10 to 40 nuclear carbon atoms,  $Ar^5$  and  $Ar^6$  each independently represent a substituted or unsubstituted monovalent aromatic group having 6 to 40 carbon atoms, and  $p$  represents an integer of 1 to 4.

9. An electroluminescence device according to Claim 8, wherein  $X^3$  in general formula (V) represents a residue group derived from naphthalene, phenanthrene, fluoranthene, anthracene, pyrene, perylene, coronene, chrysene, picene, diphenylanthracene, fluorene, triphenylene, rubicene, benzoanthracene, phenylanthracene, bisanthracene, dianthracenylbenzene or dibenzoanthracene.

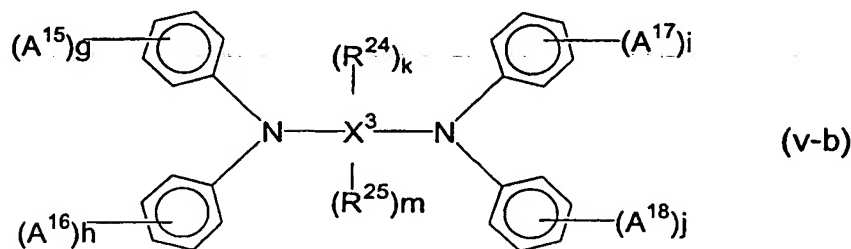
10. An electroluminescence device according to any one of Claims 1 and 2, wherein component (A) is at least one compound selected from arylamines represented by following general formula (V-a):



wherein  $X^3$  represents a substituted or unsubstituted condensed aromatic ring group having 10 to 40 nuclear carbon atoms,  $Ar^{15}$  to  $Ar^{18}$  each independently represent hydrogen atom, a substituted or unsubstituted alkyl group having 1 to 50 carbon atoms, a substituted or unsubstituted aryl group having 5 to 50 carbon atoms, a substituted or unsubstituted

aralkyl group having 7 to 50 carbon atoms, a substituted or unsubstituted cycloalkyl group having 3 to 50 carbon atoms, a substituted or unsubstituted alkoxyl group having 1 to 50 carbon atoms, a substituted or unsubstituted aryloxyl group having 5 to 50 carbon atoms, a substituted or unsubstituted arylamino group having 5 to 50 carbon atoms or a substituted or unsubstituted alkylamino group having 1 to 20 carbon atoms, g, h, i and j each represent an integer of 0 to 5, n represents an integer of 0 to 3, atoms and groups represented by a plurality of Ar<sup>15</sup> to Ar<sup>18</sup> may be a same with or different from each other and may be bonded to each other to form a saturated or unsaturated ring when g, h, i and j each represent an integer of 2 or greater, and at least one of Ar<sup>15</sup> to Ar<sup>18</sup> represents a substituted or unsubstituted secondary or tertiary alkyl group having 3 to 10 carbon atoms.

11. An electroluminescence device according to any one of Claims 1 and 2, wherein component (A) is at least one compound selected from arylamines represented by following general formula (V-b):



wherein X<sup>3</sup> represents a substituted or unsubstituted condensed aromatic ring group having 10 to 40 nuclear carbon atoms, Ar<sup>15</sup> to Ar<sup>18</sup> each independently represent hydrogen atom, a substituted or unsubstituted alkyl group having 1 to 50 carbon atoms, a substituted or unsubstituted

aryl group having 5 to 50 carbon atoms, a substituted or unsubstituted aralkyl group having 7 to 50 carbon atoms, a substituted or unsubstituted cycloalkyl group having 3 to 50 carbon atoms, a substituted or unsubstituted alkoxyl group having 1 to 50 carbon atoms, a substituted or unsubstituted aryloxy group having 5 to 50 carbon atoms, a substituted or unsubstituted arylamino group having 5 to 50 carbon atoms or a substituted or unsubstituted alkylamino group having 1 to 20 carbon atoms, g, h, i and j each represent an integer of 0 to 5, and atoms and groups represented by a plurality of Ar<sup>15</sup> to Ar<sup>18</sup> may be a same with or different from each other and may be bonded to each other to form a saturated or unsaturated ring when g, h, i and j each represent an integer of 2 or greater,

R<sup>24</sup> and R<sup>25</sup> each independently represent hydrogen atom, a substituted or unsubstituted alkyl group having 1 to 10 carbon atoms, a substituted or unsubstituted aryl group having 6 to 20 carbon atoms, a substituted or unsubstituted aralkyl group having 7 to 50 carbon atoms, a substituted or unsubstituted alkoxyl group having 1 to 50 carbon atoms or a substituted or unsubstituted aryloxy group having 5 to 50 carbon atoms, k and m each represent an integer of 0 to 2, and at least one of R<sup>24</sup> and R<sup>25</sup> represents a substituted or unsubstituted secondary or tertiary alkyl group having 3 to 10 carbon atoms.

12. An electroluminescence device according to any one of Claims 1 and 2, wherein the layer of an organic light emitting medium comprises component (A) and component (B) in amounts such that a ratio of an amount by weight of component (A) to an amount by weight of component

(B) is in a range of 1:99 to 20:80.

13. An electroluminescence device according to any one of Claims 1 and 2,  
wherein a layer of a chalcogenide, a layer of a metal halide or a layer of a  
5 metal oxide is disposed at least on one surface of the pair of electrodes.

14. An electroluminescence device according to any one of Claims 1 and 2,  
wherein a mixed region comprising a reducing dopant and organic  
substances or a mixed region comprising an oxidizing dopant and organic  
10 substances is disposed at least on one surface of the pair of electrodes.

15. An electroluminescence device according to any one of Claims 1 and 2,  
wherein the layer of an organic light emitting medium has a thickness in a  
range of 10 to 400 nm.

15

16. An organic light emitting medium which comprises:

(A) at least one compound selected from substituted and  
unsubstituted arylamines having 10 to 100 carbon atoms, and

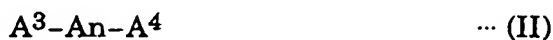
(B) at least one compound selected from:

20 anthracene derivatives represented by following general  
formula (I):



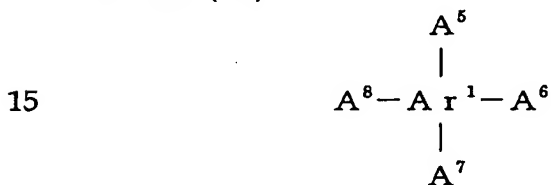
wherein  $A^1$  and  $A^2$  each independently represent a substituted or  
unsubstituted monophenylanthryl group or a substituted or unsubstituted  
25 diphenylanthryl group and may represent a same group or different  
groups, and L represents a single bond or a divalent bonding group,

anthracene derivatives represented by following general formula (II):



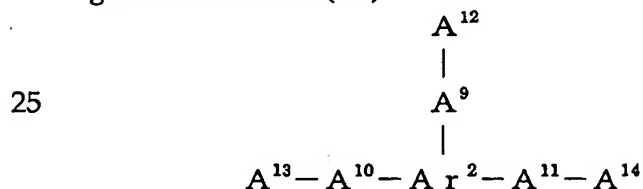
wherein An represents a substituted or unsubstituted divalent anthracene residue group, A<sup>3</sup> and A<sup>4</sup> each independently represent a substituted or unsubstituted aryl group having 6 to 40 carbon atoms, at least one of A<sup>3</sup> and A<sup>4</sup> represents a substituted or unsubstituted monovalent condensed aromatic ring group or a substituted or unsubstituted aryl group having 10 or more carbon atoms, and A<sup>3</sup> and A<sup>4</sup> may represent a same group or different groups,

spirofluorene derivatives represented by following general formula (III):



wherein Ar<sup>1</sup> represents a substituted or unsubstituted spirofluorene residue group, A<sup>5</sup> to A<sup>8</sup> each independently represent a substituted or unsubstituted aryl group having 6 to 40 carbon atoms,

compounds having condensed rings represented by following general formula (IV):



wherein Ar<sup>2</sup> represents a substituted or unsubstituted aromatic ring group having 6 to 40 carbon atoms, A<sup>9</sup> to A<sup>11</sup> each independently represent a substituted or unsubstituted arylene group having 6 to 40 carbon atoms,

A<sup>12</sup> to A<sup>14</sup> each independently represent hydrogen atom, an alkyl group having 1 to 6 carbon atoms, a cycloalkyl group having 3 to 6 carbon atoms, an alkoxy group having 1 to 6 carbon atoms, an aryloxy group having 5 to 18 carbon atoms, an aralkyloxy group having 7 to 18 carbon atoms, an arylamino group having 5 to 16 carbon atoms, nitro group, cyano group, an ester group having 1 to 6 carbon atoms or a halogen atom, and at least one of A<sup>9</sup> to A<sup>14</sup> represents a group having condensed aromatic rings, and metal complex compounds.

10 17. An organic light emitting medium which comprises:

(A) at least one compound selected from substituted and unsubstituted arylamines having 10 to 100 carbon atoms, and

(B) at least one compound selected from:

anthracene derivatives represented by following general  
15 formula (I):



wherein A<sup>1</sup> and A<sup>2</sup> each independently represent a substituted or unsubstituted monophenylanthryl group or a substituted or unsubstituted diphenylanthryl group and may represent a same group or different  
20 groups, and L represents a single bond or a divalent bonding group, and

anthracene derivatives represented by following general  
formula (II):



wherein An represents a substituted or unsubstituted divalent anthracene  
25 residue group, A<sup>3</sup> and A<sup>4</sup> each independently represent a substituted or unsubstituted aryl group having 6 to 40 carbon atoms, at least one of A<sup>3</sup>

and A<sup>4</sup> represents a substituted or unsubstituted monovalent condensed aromatic ring group or a substituted or unsubstituted aryl group having 10 or more carbon atoms, and A<sup>3</sup> and A<sup>4</sup> may represent a same group or different groups.

=> fil reg

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E WO2004018588/PN

L1 1 S E3  
SEL L1 RN

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L2 30 S E1-E30  
L3 3 S L2 AND CHRYSENEDIAMINE  
L4 1523 S 5254.2.79/RID  
L5 6 S L2 AND PYRENEDIAMINE  
L6 11968 S 3593.5.31/RID  
L7 1 S L2 AND FLUOREN  
L8 88711 S 1839.6.36/RID  
L9 1 S L2 AND SPIROBI  
L10 5 S L2 AND BIANTHRACENE  
L11 34013 S 2508.17.56/RID  
L12 935 S 9841.9.1/RID  
L13 STR  
L14 22 S L13  
L15 12 S (L4 OR L6 OR L8 OR L11 OR L12) AND L14  
L16 6580 S L13 FUL  
L17 3146 S (L4 OR L6 OR L8 OR L11 OR L12) AND L16  
L18 1499 S L4 NOT L17  
L19 11356 S L6 NOT L17  
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L21 33397 S L11 NOT L17  
L22 876 S L12 NOT L17  
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L25 14212 S 2404.11.109/RID  
L26 14182 S L25 NOT L17

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L31 47445 S L21  
L32 306 S L22  
L33 26531 S L26



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L36      108 S L35 AND OPTICAL?/SC
L37      506 S L27(L)DEV/RL
L38      116 S L37 AND L35
L39      78 S L38(L)?LAYER?
L40      65 S L39 AND OPTICAL?/SC
L41      1 S L40 AND L1

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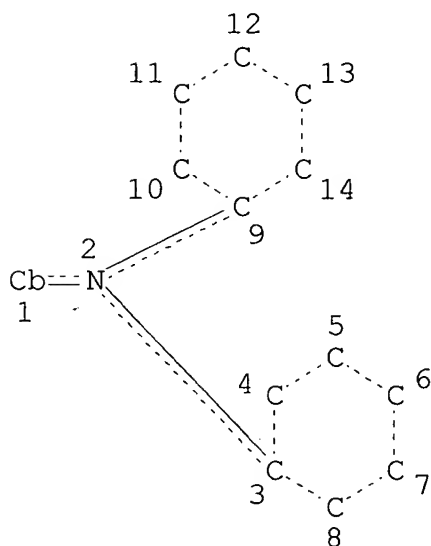
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L13          STR

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NODE ATTRIBUTES:  
 DEFAULT MLEVEL IS ATOM  
 GGCAT IS PCY AT 1  
 DEFAULT ECLEVEL IS LIMITED

GRAPH ATTRIBUTES:  
 RING(S) ARE ISOLATED OR EMBEDDED  
 NUMBER OF NODES IS 14

## STEREO ATTRIBUTES: NONE

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L40 65 SEA FILE=CAPLUS ABB=ON PLU=ON L39 AND OPTICAL?/SC

=> fil caplus

FILE 'CAPLUS' ENTERED AT 13:39:17 ON 01 FEB 2005

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L40 ANSWER 1 OF 65 CAPLUS COPYRIGHT 2005 ACS on STN

ACCESSION NUMBER: 2005:14351 CAPLUS

TITLE: Aminoanthryl derivative substitution compound  
and organic electroluminescent device using  
the same

INVENTOR(S): Saitoh, Akihito; Senoo, Akihiro; Ueno,  
Kazunori; Okinaka, Keiji; Suzuki, Koichi

PATENT ASSIGNEE(S): Canon Kabushiki Kaisha, Japan

SOURCE: PCT Int. Appl., 74 pp.

CODEN: PIXXD2

DOCUMENT TYPE: Patent

LANGUAGE: English  
 FAMILY ACC. NUM. COUNT: 1  
 PATENT INFORMATION:

PATENT NO. -----	KIND ----	DATE -----	APPLICATION NO. -----	DATE
WO 2005000787	A1	20050106	WO 2004-JP9372	

2004  
0625

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 CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG,  
 ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, KE,  
 KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG,  
 MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT,  
 RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT,  
 TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW  
 RW: BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM,  
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 CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU,  
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JP 2005015419 A2 20050120 JP 2003-184263

2003  
0627

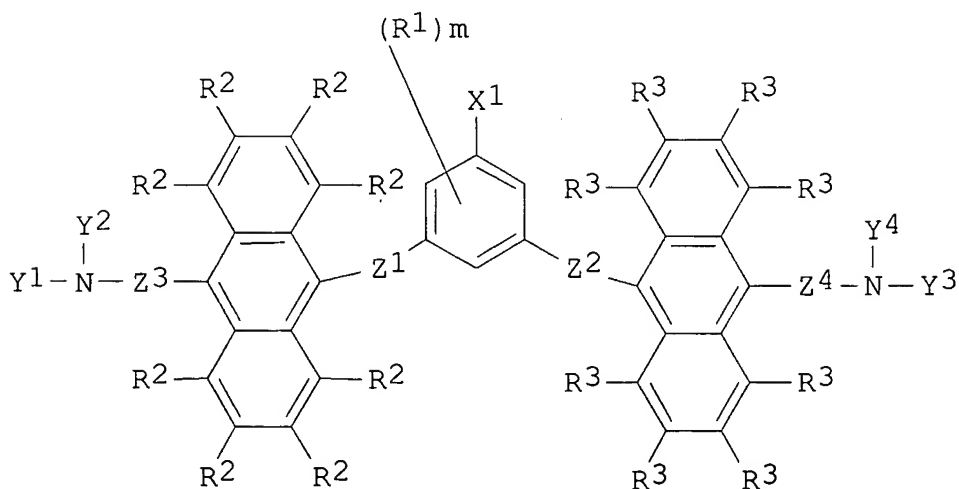
PRIORITY APPLN. INFO.:

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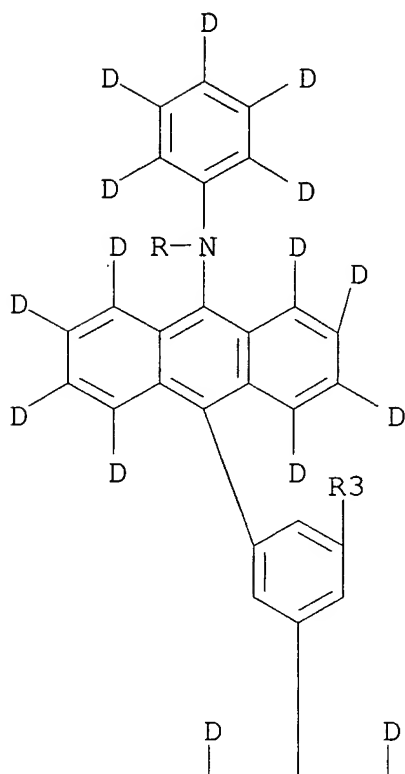


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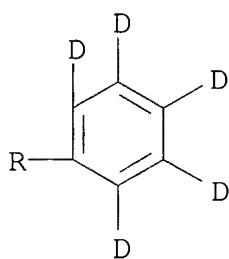
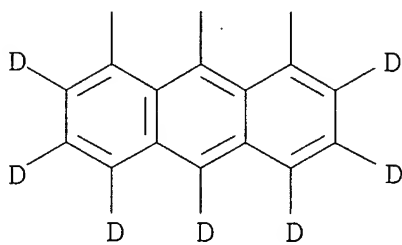
AB There is provided an aminoanthryl derivative substitution compound represented by the following general formula I. In the formula, each of Y1 to Y4 is selected from the group consisting of a substituted or unsubstituted alkyl group, aralkyl group, aryl group, and heterocyclic group; Y1 to Y4 may be the same or different, and Y1 and Y2, and Y3 and Y4 may bind to each other to form a ring; each of Z1 and Z2 is selected from the group consisting of a direct bond, a substituted or unsubstituted alkylene group, alkenylene group, alkynylene group, aralkylene group, arylene group, and divalent heterocyclic group, and a divalent substituent having a coupling group, and Z1 and Z2 may be the same or different; each of Z3 and Z4 is selected from the group consisting of a direct bond, a substituted or unsubstituted arylene group and divalent heterocyclic group, and a divalent substituent having a coupling group, and Z3 and Z4 may be the same or different;. Furthermore, X1 is selected from the group consisting of a hydrogen atom, a heavy hydrogen atom, a halogen atom, and a substituted or unsubstituted alkyl group, aralkyl group, alkenyl group, alkynyl group, alkoxy group, sulfide group, aryl group, and heterocyclic group, and X1 may be the same or different; R1 is selected from the group consisting of a hydrogen atom, a heavy hydrogen atom, a halogen atom, and a substituted or unsubstituted alkyl group and alkoxy group, and R1 may be the same or different; each of R2 and R3 is one selected from the group consisting of a hydrogen atom, a heavy hydrogen atom, a halogen atom, and a substituted or unsubstituted alkyl group, aryl group, alkoxy group, and amino group, and R2 and R3 may be the same or different; and m is an integer from 0 to 3. The compound according to the present invention can provide an organic electroluminescence device showing an extremely pure **luminescence** hue, and an optical output with high efficiency, high luminance, and long life.

IT 821808-32-6P 821808-33-7P  
(aminoanthryl derivative substitution compound and organic electroluminescent device using the same)  
RN 821808-32-6 CAPLUS  
CN INDEX NAME NOT YET ASSIGNED

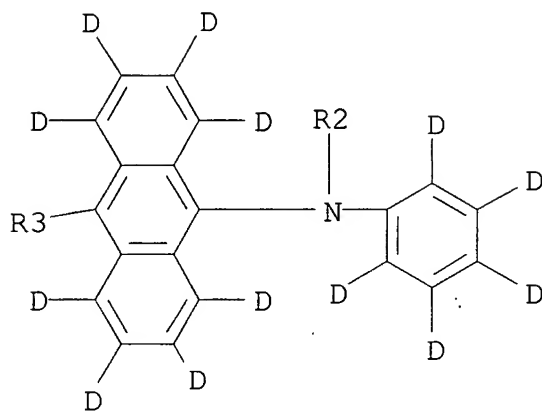
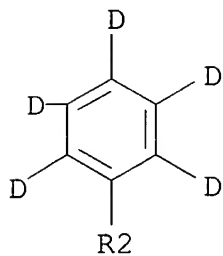
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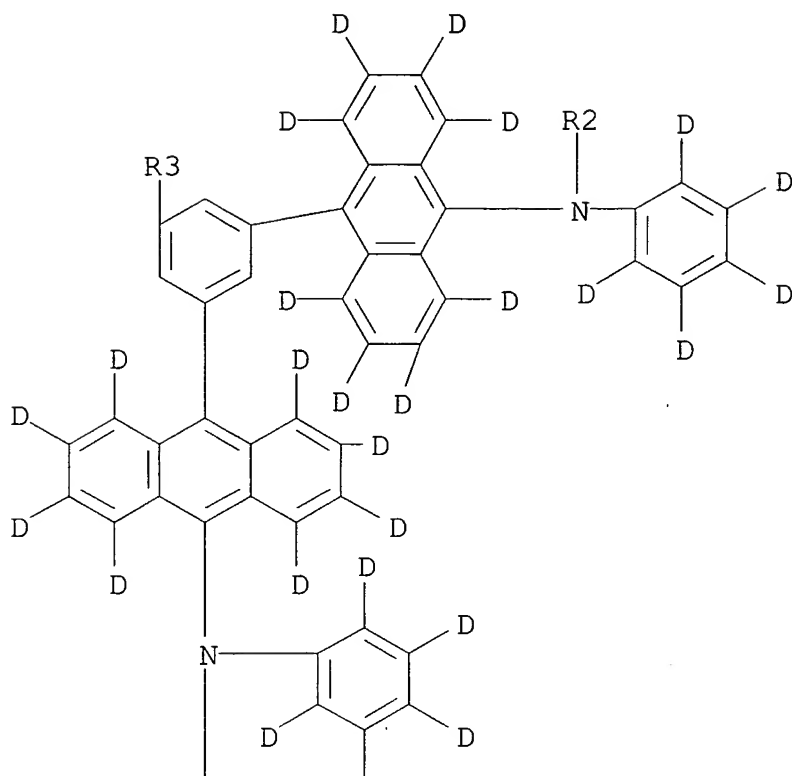


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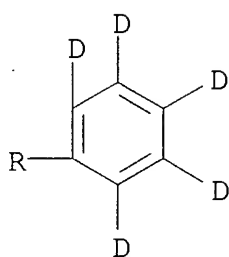
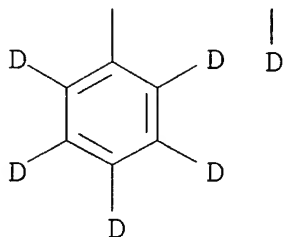
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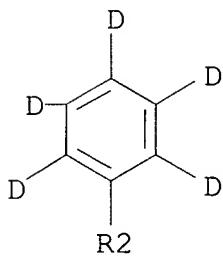




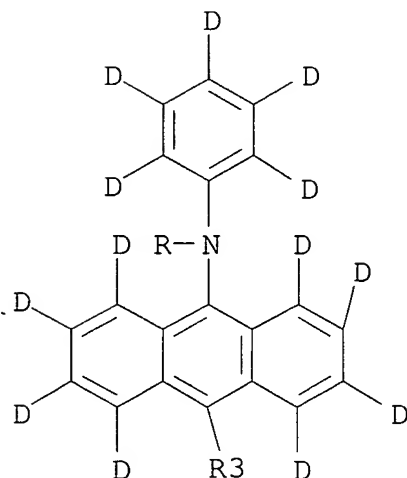
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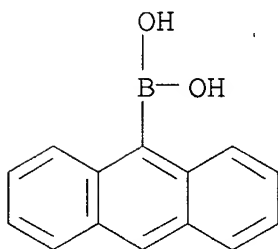
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PAGE 4-A

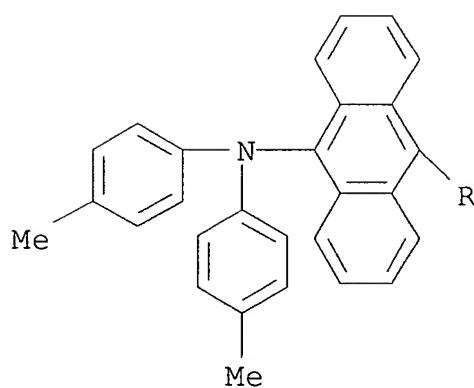
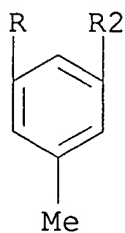


IT 100622-34-2, Anthracene-9-boronic acid  
 (aminoanthryl derivative substitution compound and organic  
 electroluminescent device using the same)  
 RN 100622-34-2 CAPLUS  
 CN Boronic acid, 9-anthracenyl- (9CI) (CA INDEX NAME)

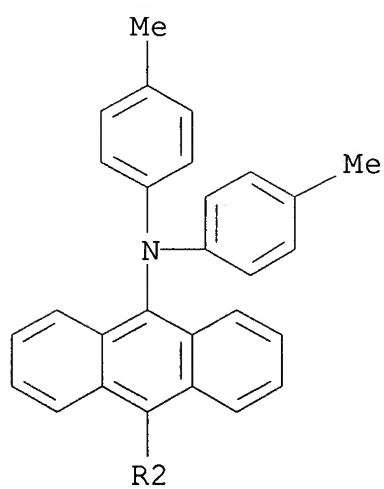


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 813437-46-6 821808-37-1 821808-38-2  
 821808-39-3 821808-40-6 821808-41-7  
 (electroluminescent device **layer**; aminoanthryl derivative  
 substitution compound and organic electroluminescent device using  
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 RN 813437-42-2 CAPLUS  
 CN INDEX NAME NOT YET ASSIGNED

PAGE 1-A

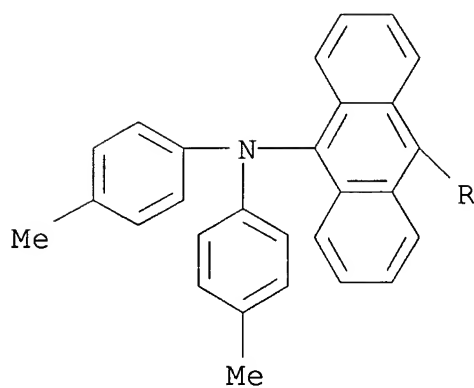
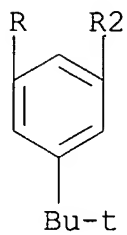


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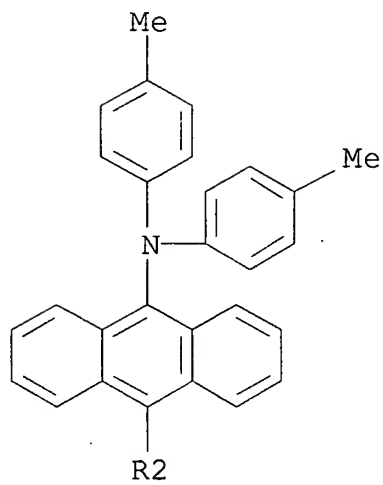


RN 813437-43-3 CAPLUS  
CN INDEX NAME NOT YET ASSIGNED

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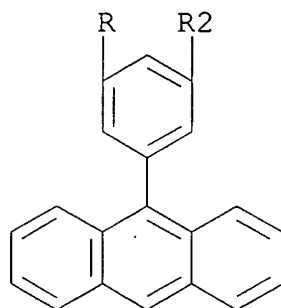


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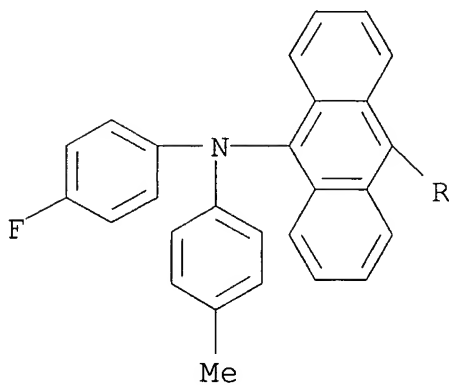


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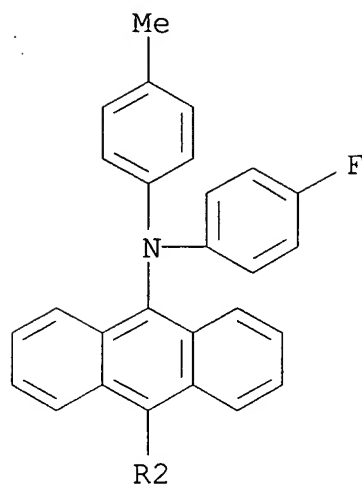
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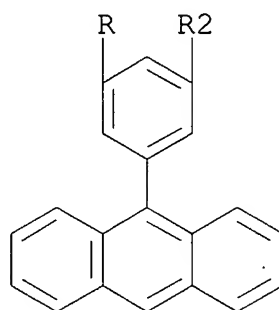


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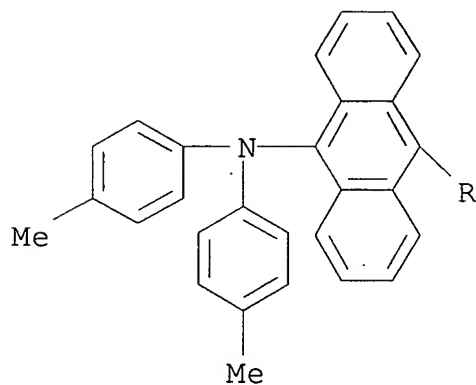


RN 813437-46-6 CAPLUS  
CN INDEX NAME NOT YET ASSIGNED

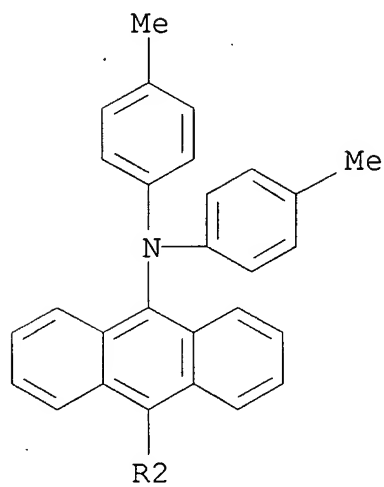
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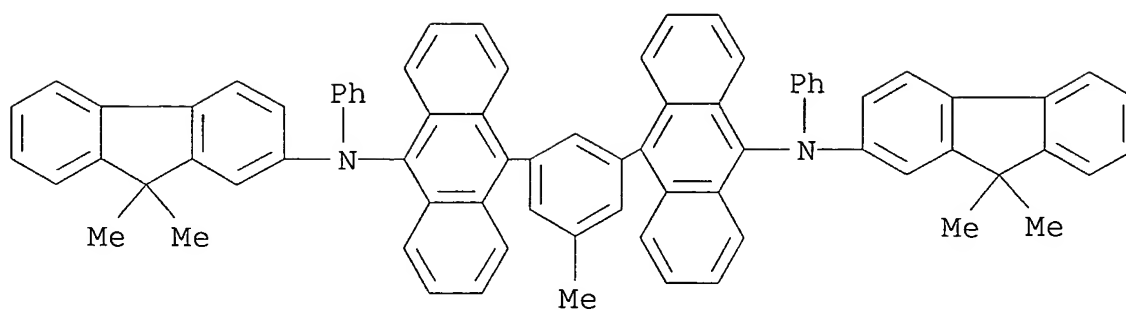
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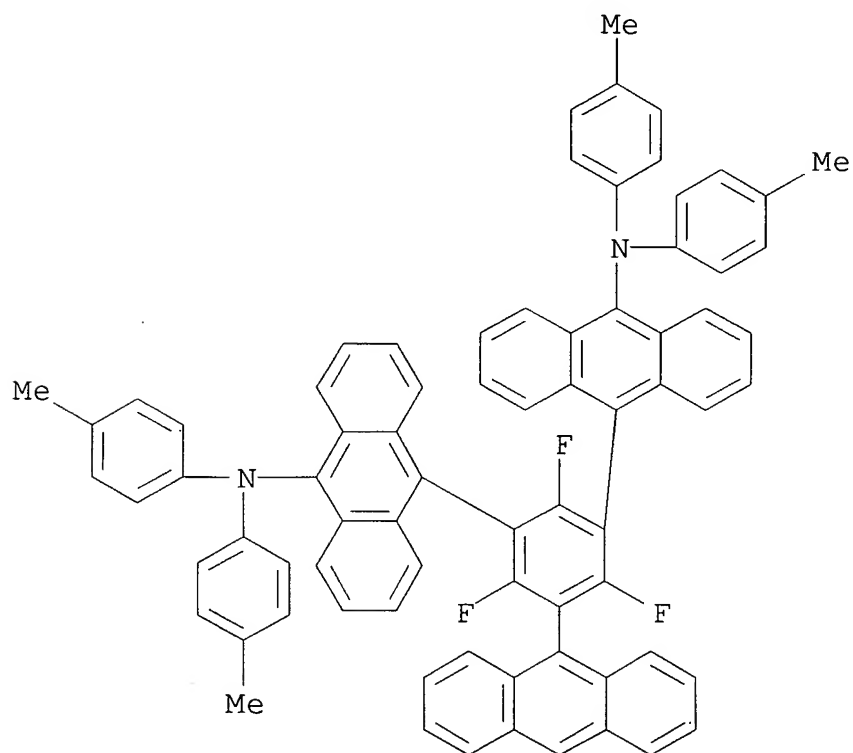
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CN INDEX NAME NOT YET ASSIGNED

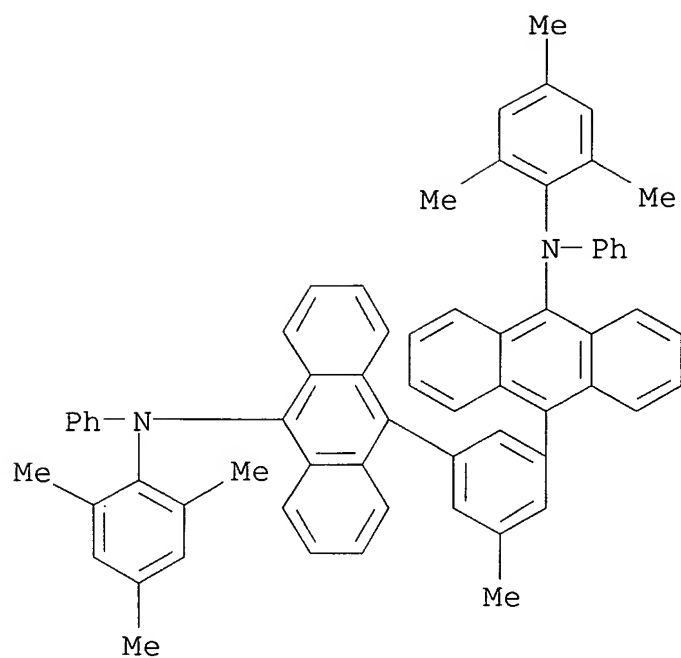


RN 821808-38-2 CAPLUS  
CN INDEX NAME NOT YET ASSIGNED

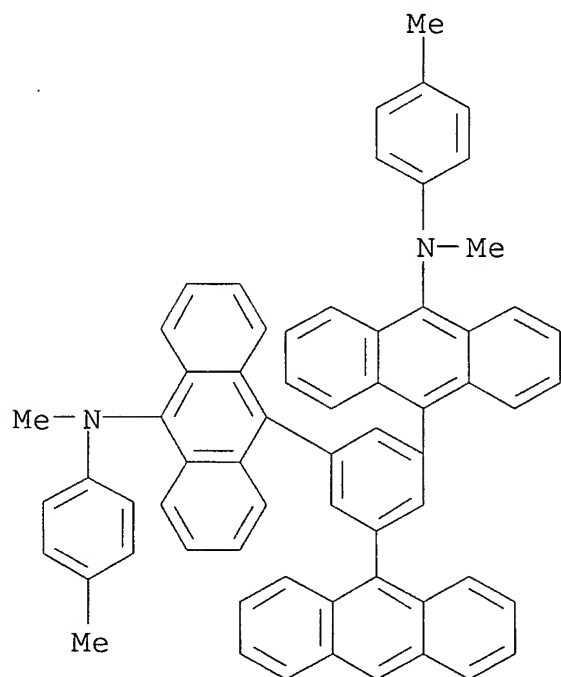


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CN INDEX NAME NOT YET ASSIGNED

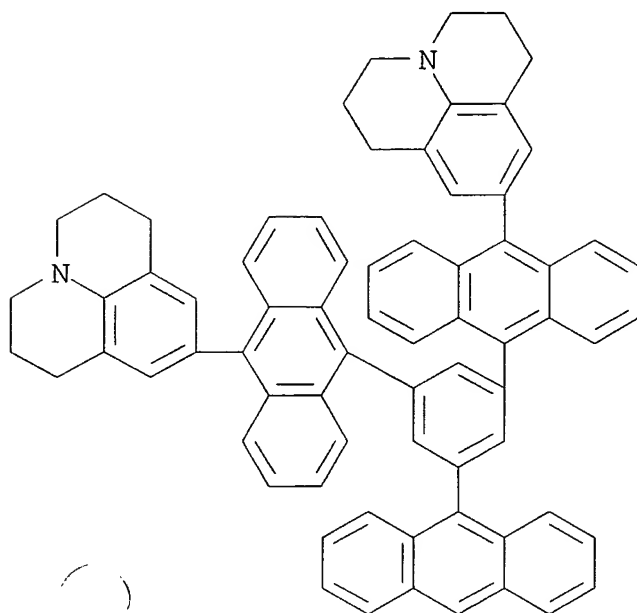




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CN INDEX NAME NOT YET ASSIGNED

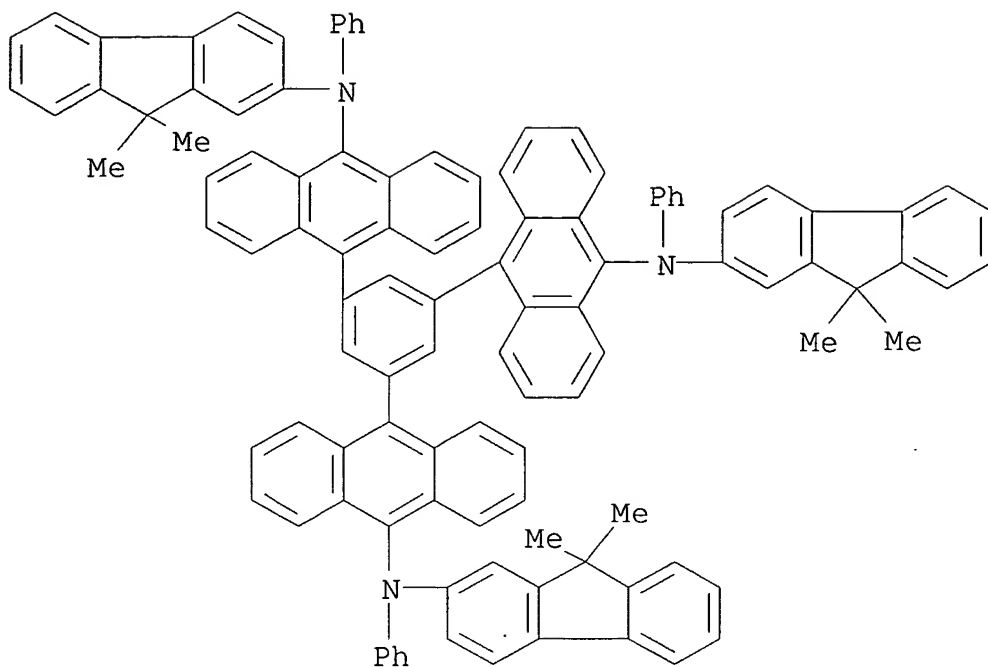


RN 821808-41-7 CAPLUS  
CN INDEX NAME NOT YET ASSIGNED



IT 813437-45-5P 813467-73-1P 821808-31-5P  
(electroluminescent device **layer**; aminoanthryl derivative  
substitution compound and organic electroluminescent device using  
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RN 813437-45-5 CAPLUS  
CN INDEX NAME NOT YET ASSIGNED



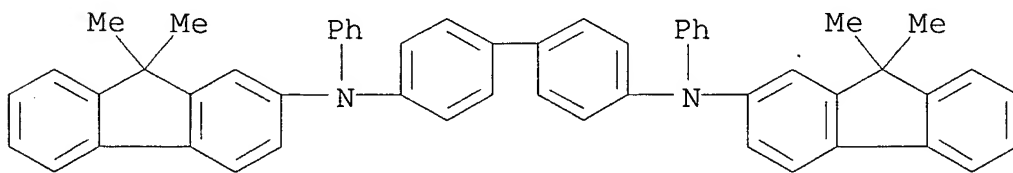


IT 361486-60-4

(hole transport **layer**; aminoanthryl derivative substitution compound and organic electroluminescent device using the same)

RN 361486-60-4 CAPLUS

CN [1,1'-Biphenyl]-4,4'-diamine, N,N'-bis(9,9-dimethyl-9H-fluoren-2-yl)-N,N'-diphenyl- (9CI) (CA INDEX NAME)



IT 713542-04-2P 813461-33-5P 813461-34-6P

821808-29-1P 821808-30-4P 821808-34-8P

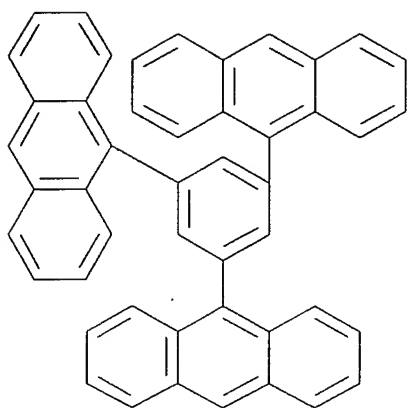
821808-35-9P 821808-36-0P

(intermediate; aminoanthryl derivative substitution compound and organic

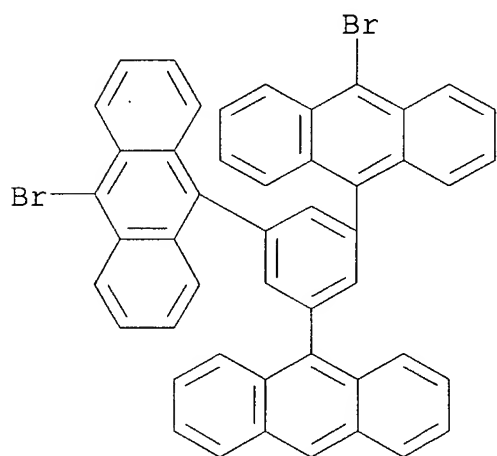
electroluminescent device using the same)

RN 713542-04-2 CAPLUS

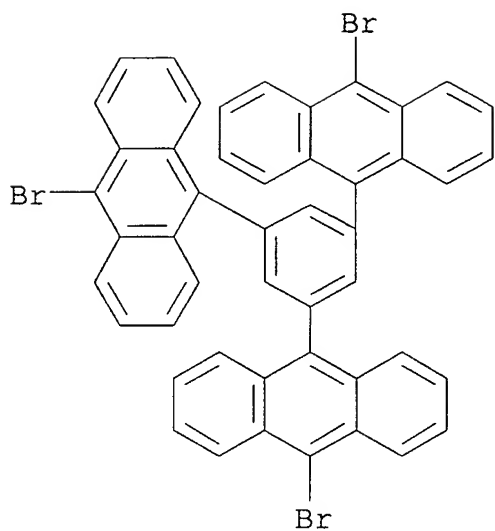
CN Anthracene, 9,9',9''-(1,3,5-benzenetriyl)tris- (9CI) (CA INDEX NAME)



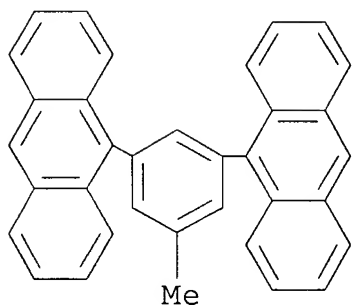
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CN INDEX NAME NOT YET ASSIGNED



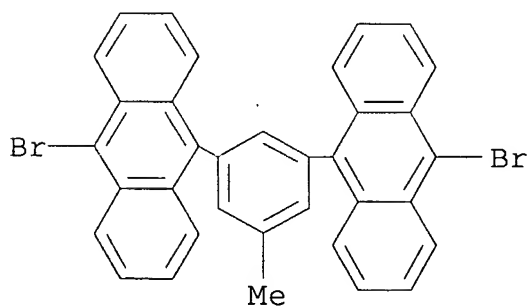
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CN INDEX NAME NOT YET ASSIGNED



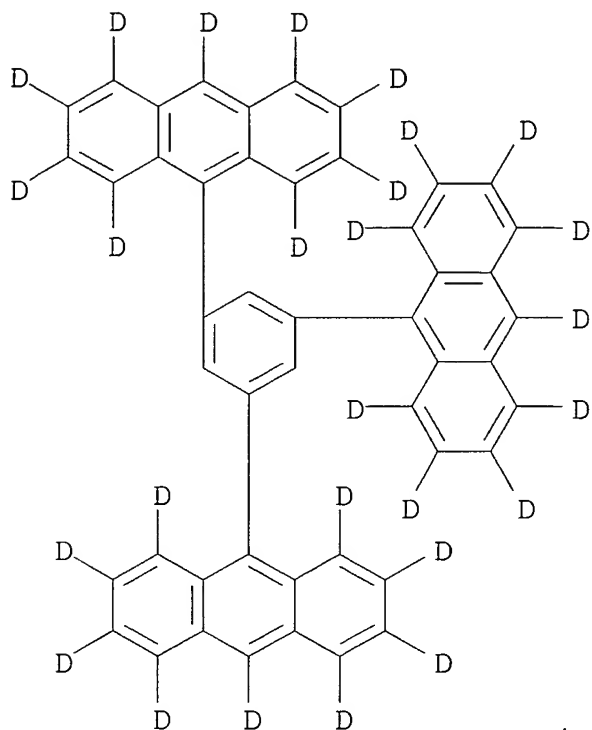
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CN INDEX NAME NOT YET ASSIGNED



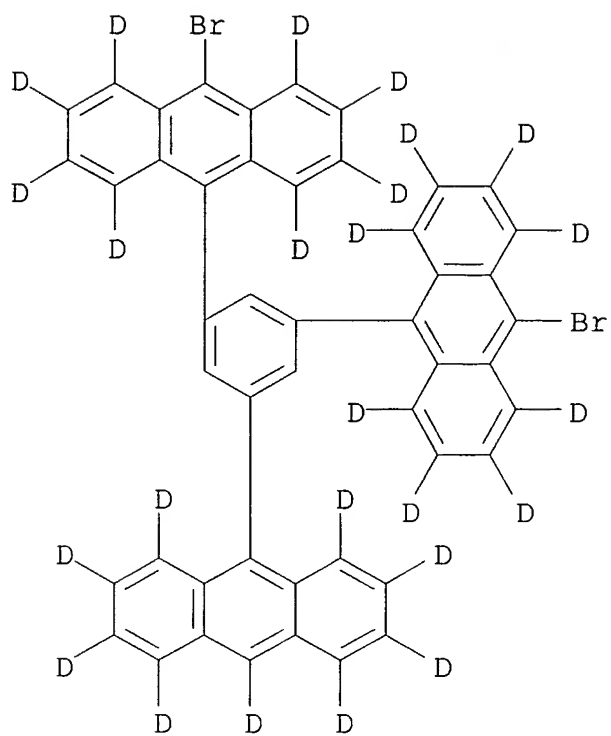
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CN INDEX NAME NOT YET ASSIGNED



RN 821808-34-8 CAPLUS  
CN INDEX NAME NOT YET ASSIGNED

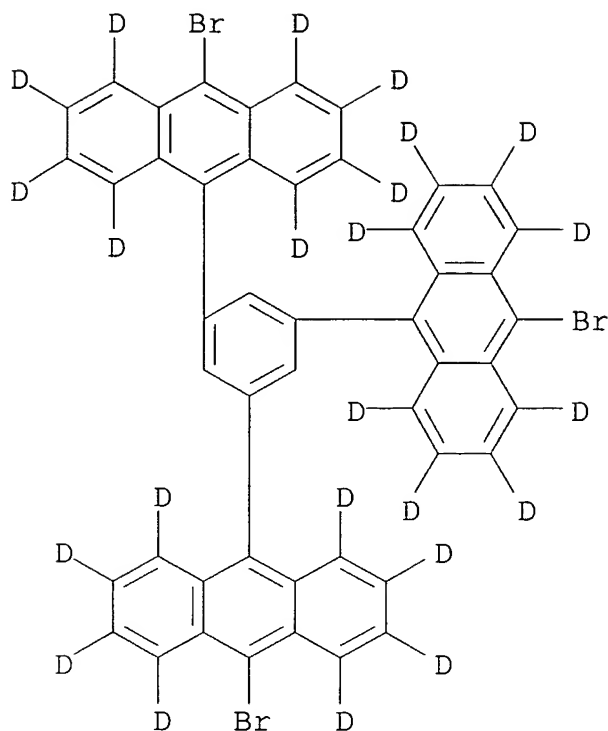


RN 821808-35-9 CAPLUS  
CN INDEX NAME NOT YET ASSIGNED



RN 821808-36-0 CAPLUS  
CN INDEX NAME NOT YET ASSIGNED





- IC ICM C07C211-61  
ICS C09K011-06; H05B033-14
- CC 73-5 (**Optical**, Electron, and Mass Spectroscopy and Other  
Related Properties)  
Section cross-reference(s): 25, 76
- IT **Luminescent** substances  
(electroluminescent; aminoanthryl derivative substitution compound  
and organic electroluminescent device using the same)
- IT **821808-32-6P 821808-33-7P**  
(aminoanthryl derivative substitution compound and organic  
electroluminescent device using the same)
- IT 626-39-1, 1,3,5-Tribromobenzene 1611-92-3, 3,5-Dibromotoluene  
37055-51-9 **100622-34-2**, Anthracene-9-boronic acid  
(aminoanthryl derivative substitution compound and organic  
electroluminescent device using the same)
- IT **813437-42-2 813437-43-3 813437-44-4**  
**813437-46-6 821808-37-1 821808-38-2**  
**821808-39-3 821808-40-6 821808-41-7**  
(electroluminescent device **layer**; aminoanthryl derivative  
substitution compound and organic electroluminescent device using  
the same)
- IT **813437-45-5P 813467-73-1P 821808-31-5P**  
(electroluminescent device **layer**; aminoanthryl derivative

substitution compound and organic electroluminescent device using the same)

IT 361486-60-4

(hole transport layer; aminoanthryl derivative substitution compound and organic electroluminescent device using the same)

IT 713542-04-2P 813461-33-5P 813461-34-6P  
821808-29-1P 821808-30-4P 821808-34-8P  
821808-35-9P 821808-36-0P

(intermediate; aminoanthryl derivative substitution compound and organic electroluminescent device using the same)

REFERENCE COUNT: 11 THERE ARE 11 CITED REFERENCES AVAILABLE  
FOR THIS RECORD. ALL CITATIONS AVAILABLE  
IN THE RE FORMAT

L40 ANSWER 2 OF 65 CAPLUS COPYRIGHT 2005 ACS on STN

ACCESSION NUMBER: 2005:923 CAPLUS

DOCUMENT NUMBER: 142:82030

TITLE: Organic electroluminescent device with anthracene derivative

INVENTOR(S): Saitoh, Akihito; Suzuki, Koichi; Senoo, Akihiro; Ueno, Kazunori; Okinaka, Keiji

PATENT ASSIGNEE(S): Canon Kabushiki Kaisha, Japan

SOURCE: U.S. Pat. Appl. Publ., 34 pp.

CODEN: USXXCO

DOCUMENT TYPE: Patent

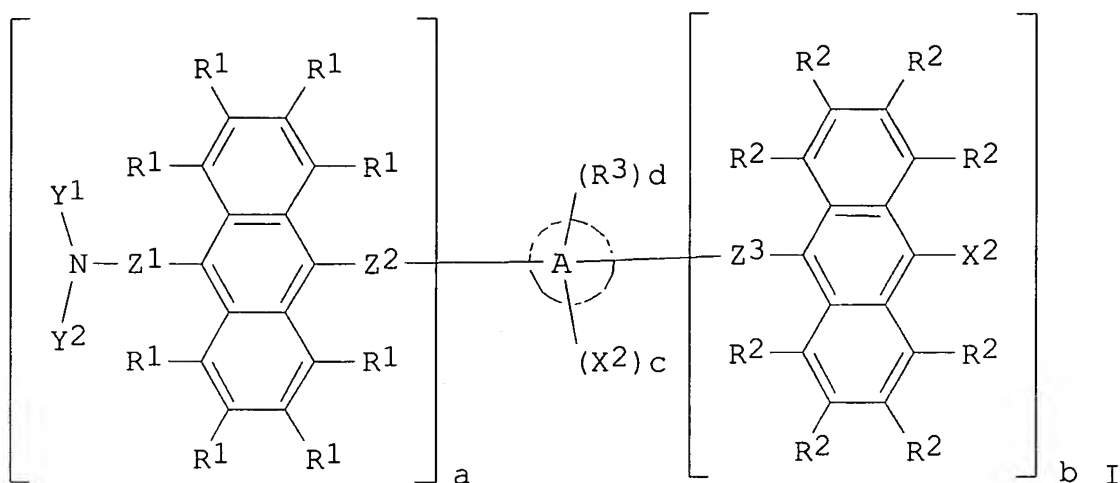
LANGUAGE: English

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
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JP 2005015418	A2	20050120	JP 2003-184261	2003 0627
PRIORITY APPLN. INFO.:			JP 2003-184261	A 2003 0627

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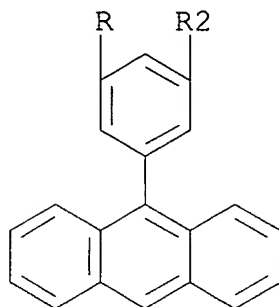
AB The invention refers to an organic electroluminescent device with high-efficiency optical output, high luminance and long life, comprising at least one **layer** having a **light-emitting** region containing a compound I [A = a mol. unit containing an aromatic ring, condensed polycyclic ring, or heterocycle; Y1,2 = (un)substituted alkyl, aralkyl, aryl, heterocycle or divalent substituent having a linking group where Y1 and Y2 may be linked together to form a ring; Z1 = direct bond, (un)substituted arylene, divalent heterocycle, or divalent substituent having a linking group; Z2,3 = direct bond, (un)substituted alkylene, alkenylene, alkynylene, aralkynylene arylene, divalent heterocycle or divalent substituent having a linking group; X1 = H, D, halo, (un)substituted alkyl, alkenyl, alkynyl, aralkyl, alkoxy, sulfide, aryl heterocycle, substituted silyl, boranyl or divalent substituent having a linking group; X2 = (un)substituted aryl, heterocycle or divalent substituent having a linking group; R1,2 = H, D, halo, (un)substituted alkyl, aryl, alkoxy or amino; R3 = H, D, halo, (un)substituted alkyl or alkoxy; a = 0 - 6; b + c + d = 6 - a, where a + b ≥ 2, and when a = 0 at least one of X1 on the anthryl group contains a substituent other than H, D or halo] and a 2nd compound having a band gap larger than a band gap of the 1st compound

IT 813437-46-6 813437-47-7D, derivs.  
 813437-48-8 813467-72-0 813467-72-0D,  
 derivs. 813467-73-1 813467-74-2  
 813467-76-4 813467-77-5 813467-81-1  
 (organic electroluminescent device with anthracene derivative)

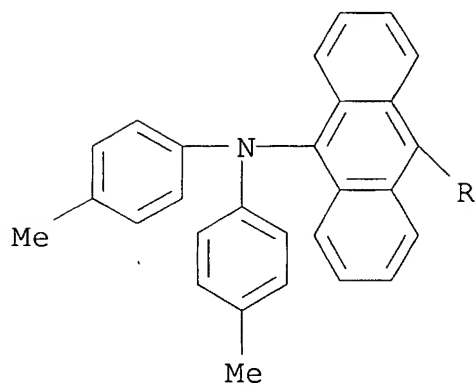
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CN INDEX NAME NOT YET ASSIGNED

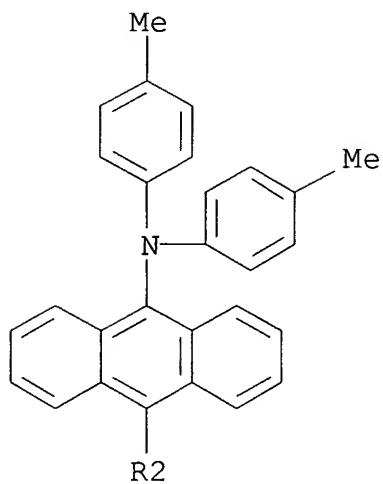
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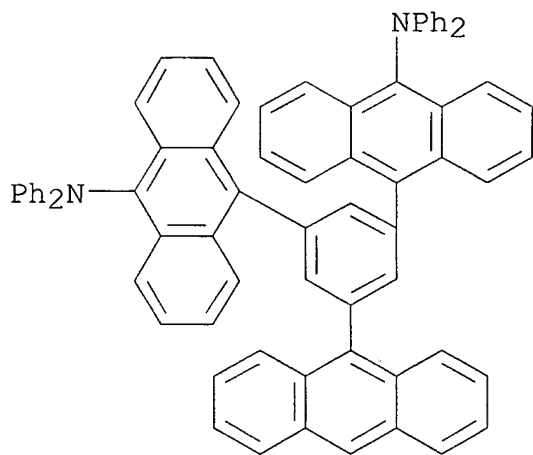
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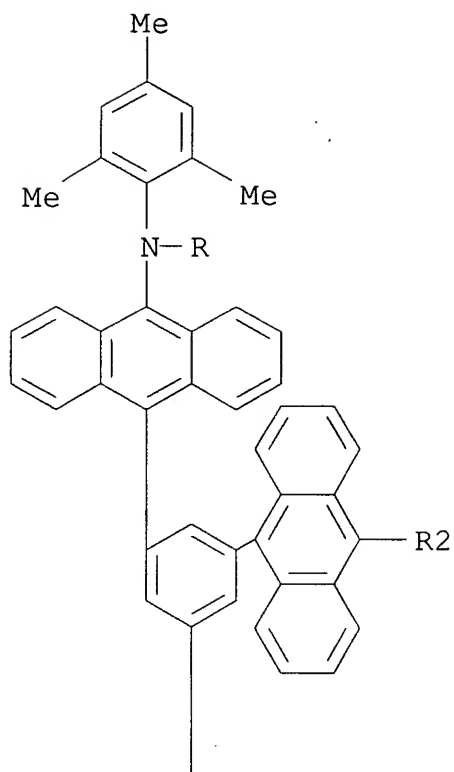


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CN INDEX NAME NOT YET ASSIGNED

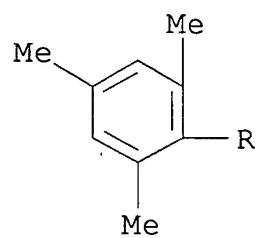
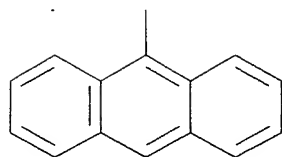


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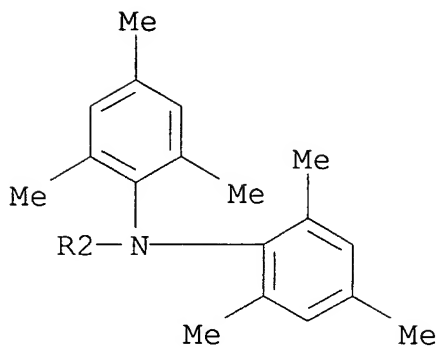
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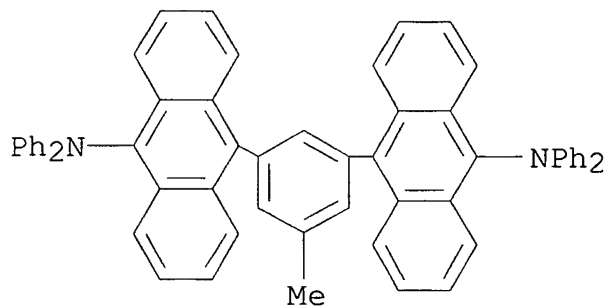
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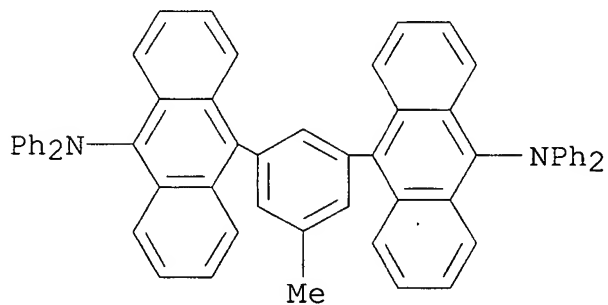
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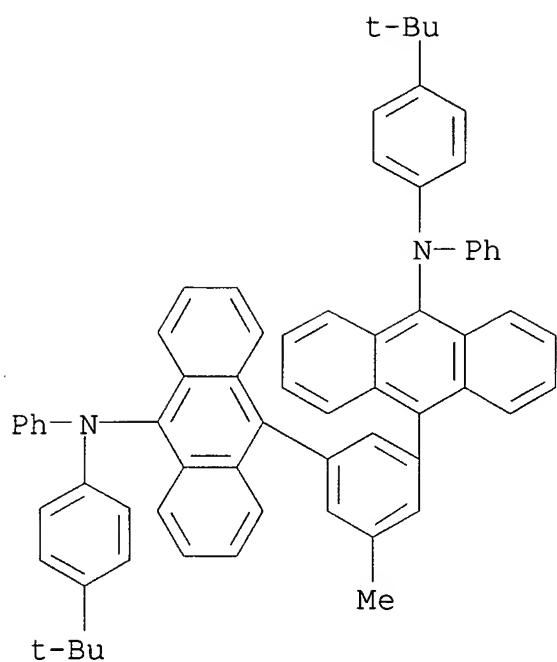
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CN INDEX NAME NOT YET ASSIGNED



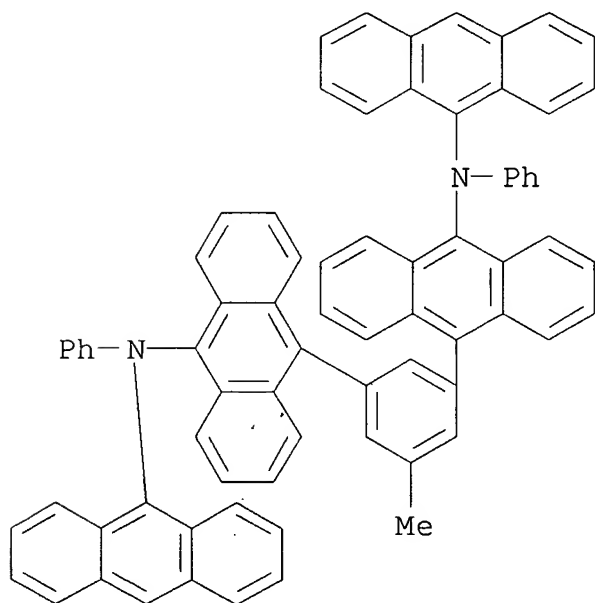
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CN INDEX NAME NOT YET ASSIGNED



RN 813467-73-1 CAPLUS  
CN INDEX NAME NOT YET ASSIGNED

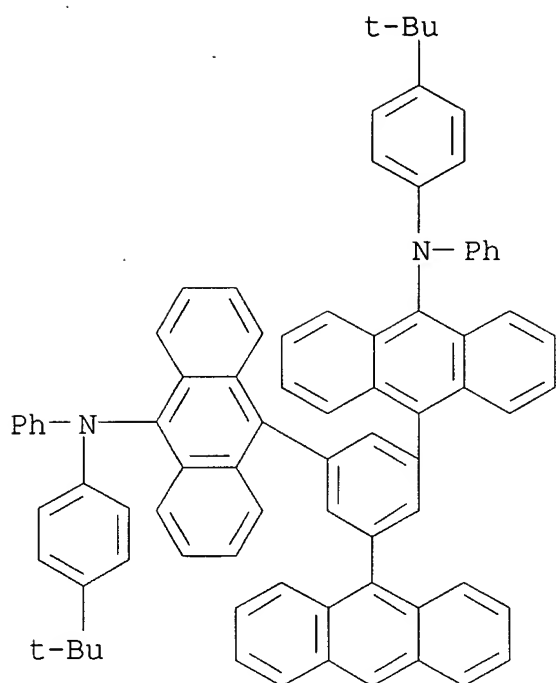


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CN INDEX NAME NOT YET ASSIGNED

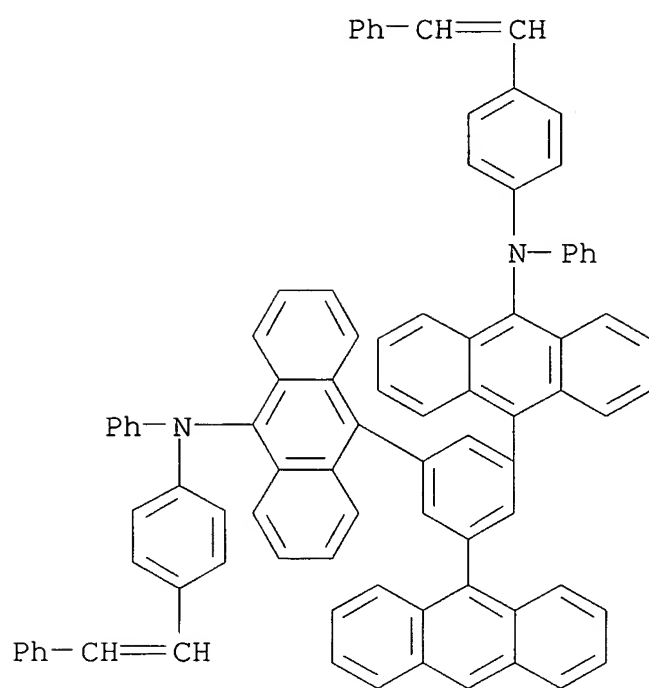


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CN INDEX NAME NOT YET ASSIGNED



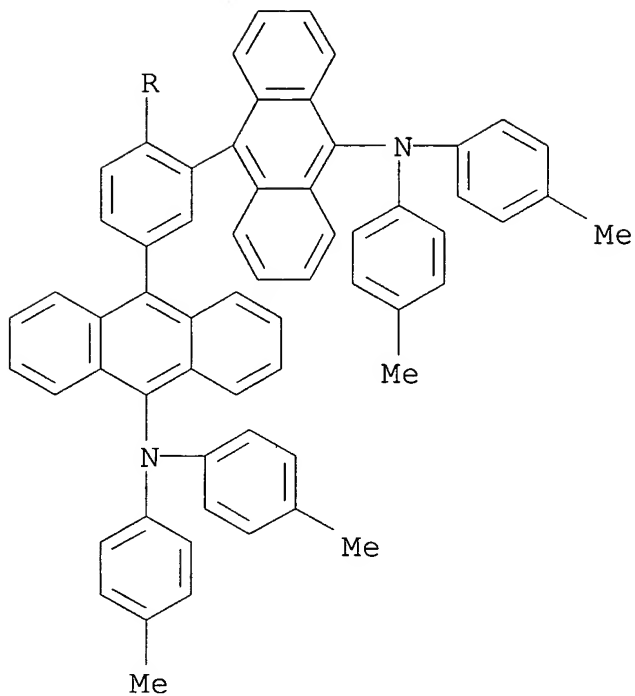


RN 813467-77-5 CAPLUS  
CN INDEX NAME NOT YET ASSIGNED

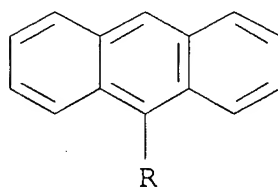


RN 813467-81-1 CAPLUS  
CN INDEX NAME NOT YET ASSIGNED

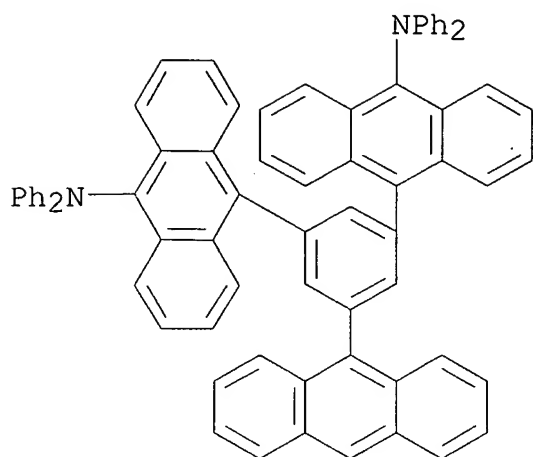
PAGE 1-A



PAGE 2-A

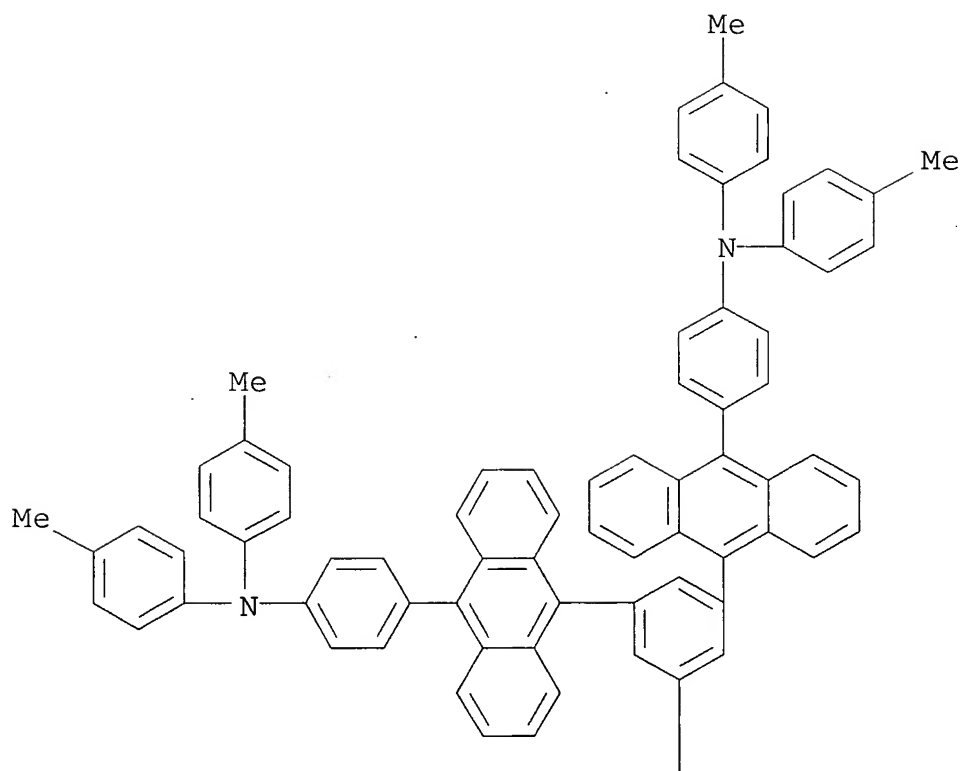


IT 813437-47-7P 813467-75-3P 813467-78-6P  
813467-79-7P 813467-80-0P  
(organic electroluminescent device with anthracene derivative)  
RN 813437-47-7 CAPLUS  
CN INDEX NAME NOT YET ASSIGNED

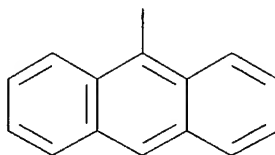


RN 813467-75-3 CAPLUS  
CN INDEX NAME NOT YET ASSIGNED

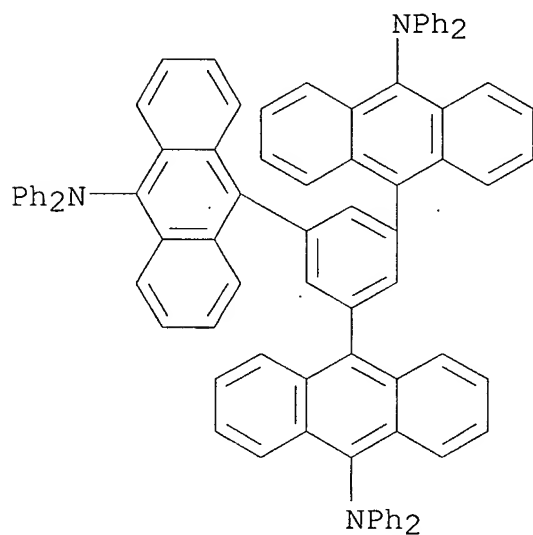
PAGE 1-A



PAGE 2-A

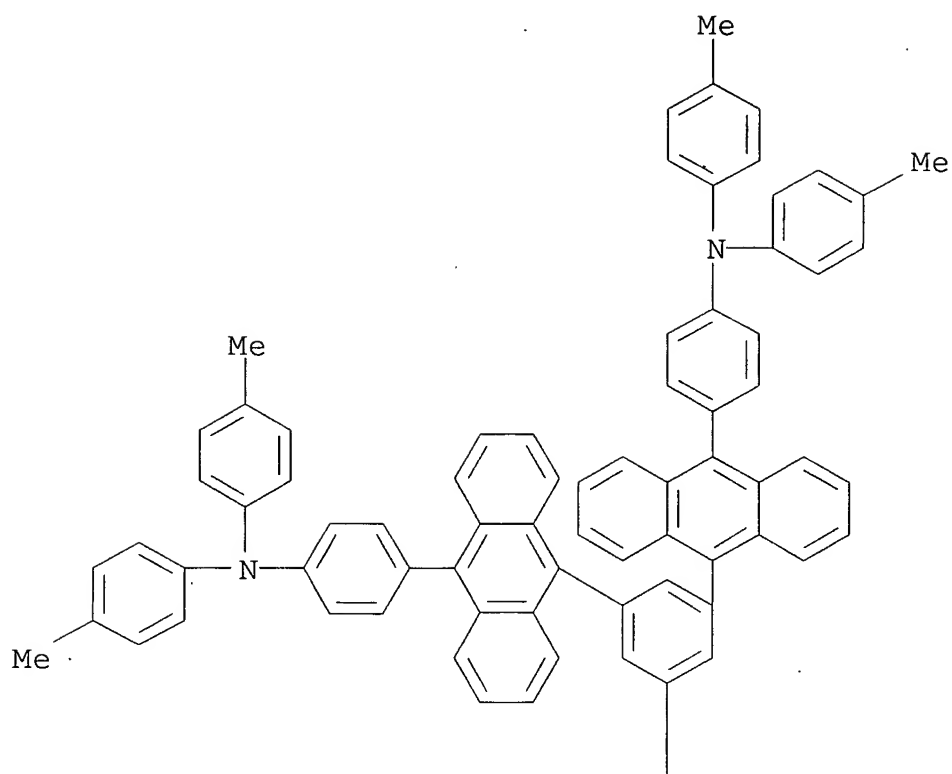


RN 813467-78-6 CAPLUS  
CN INDEX NAME NOT YET ASSIGNED

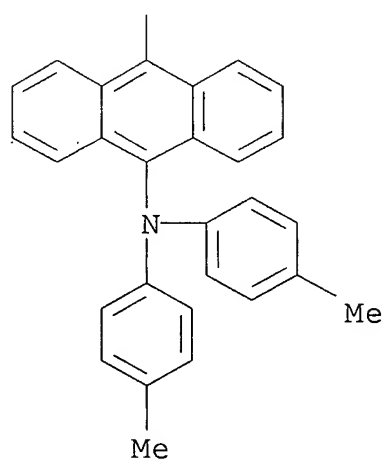


RN 813467-79-7 CAPLUS  
CN 9-Anthracenamine, 10-[3,5-bis[10-[4-[bis(4-methylphenyl)amino]phenyl]-9-anthracenyl]phenyl]-N,N-bis(4-methylphenyl)- (9CI) (CA INDEX NAME)

PAGE 1-A

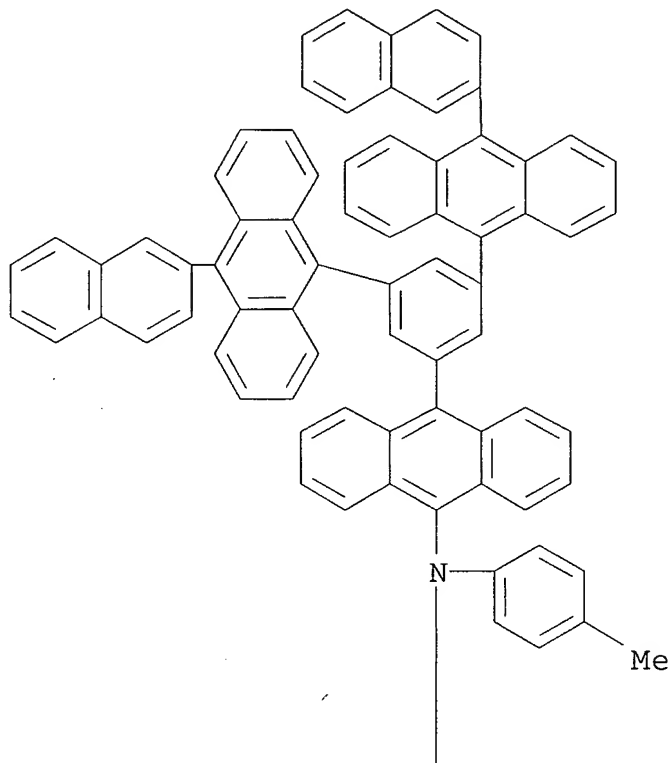


PAGE 2-A

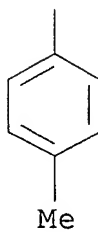


RN 813467-80-0 CAPLUS  
CN 9-Anthracenamine, 10-[3,5-bis[10-(2-naphthalenyl)-9-anthracenyl]phenyl]-N,N-bis(4-methylphenyl)- (9CI) (CA INDEX NAME)

PAGE 1-A



PAGE 2-A

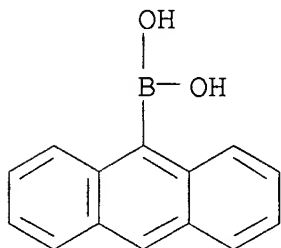


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813461-32-4 813461-33-5

(organic electroluminescent device with anthracene derivative)

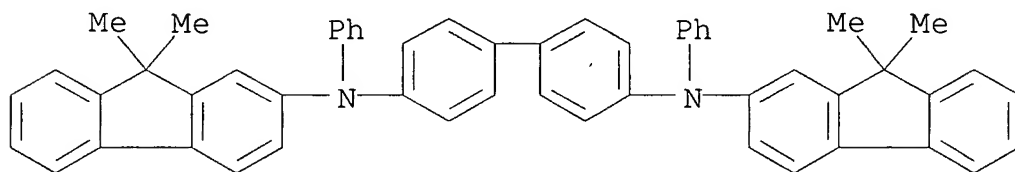
RN 100622-34-2 CAPLUS

CN Boronic acid, 9-anthracenyl- (9CI) (CA INDEX NAME)



RN 361486-60-4 CAPLUS

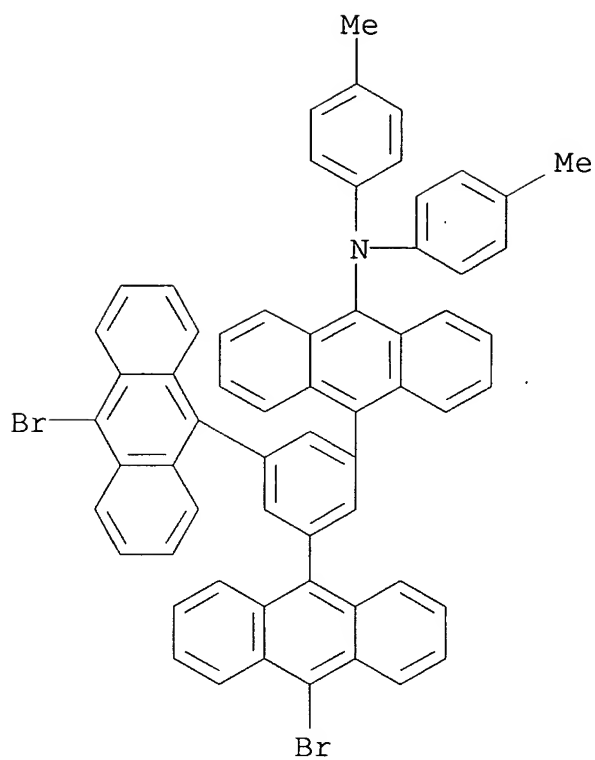
CN [1,1'-Biphenyl]-4,4'-diamine, N,N'-bis(9,9-dimethyl-9H-fluoren-2-yl)-N,N'-diphenyl- (9CI) (CA INDEX NAME)



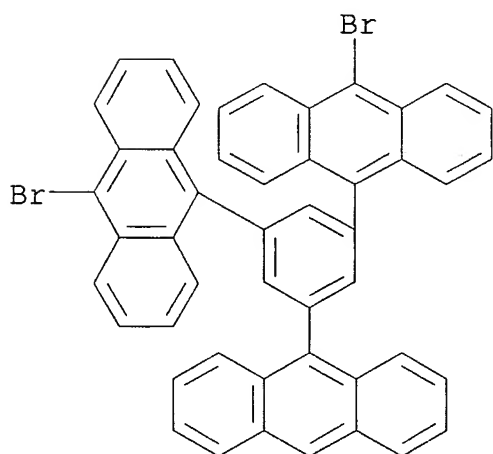
RN 813461-32-4 CAPLUS

CN 9-Anthracenamine, 10-[3,5-bis(10-bromo-9-anthracenyl)phenyl]-N,N-bis(4-methylphenyl)- (9CI) (CA INDEX NAME)



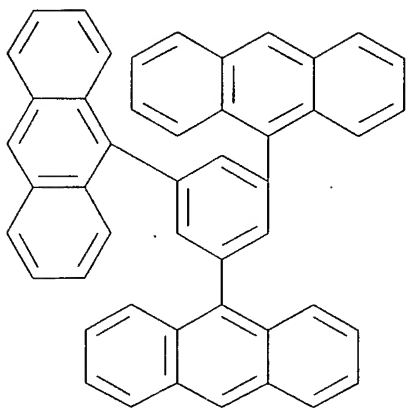


RN 813461-33-5 CAPLUS  
CN INDEX NAME NOT YET ASSIGNED



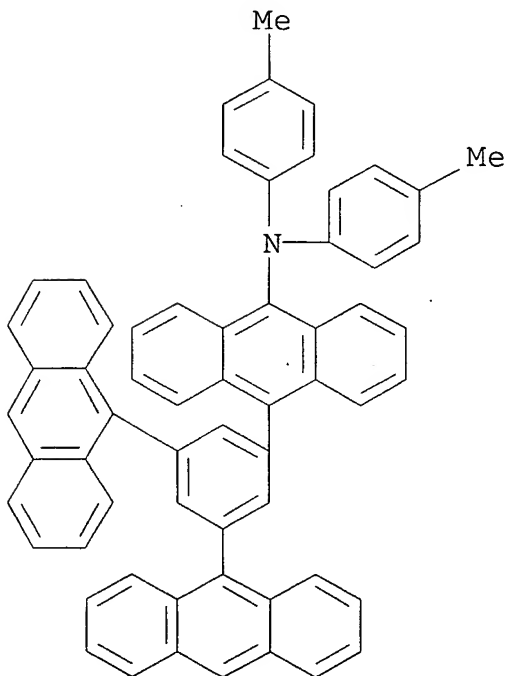
IT 713542-04-2P 813461-31-3P 813461-34-6P  
(organic electroluminescent device with anthracene derivative)  
RN 713542-04-2 CAPLUS

CN Anthracene, 9,9',9''-(1,3,5-benzenetriyl)tris- (9CI) (CA INDEX NAME)



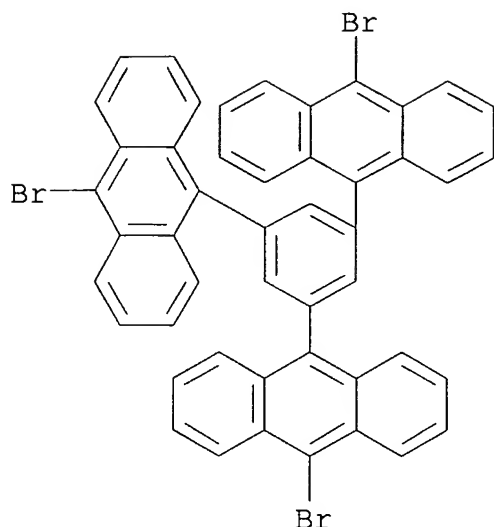
RN 813461-31-3 CAPLUS

CN 9-Anthracenamine, 10-(3,5-di-9-anthracenylphenyl)-N,N-bis(4-methylphenyl)- (9CI) (CA INDEX NAME)



RN 813461-34-6 CAPLUS

CN INDEX NAME NOT YET ASSIGNED



IC ICM H01J001-62  
 ICS H01J063-04; C07D409-14; C07D401-14  
 NCL 313504000; 546285000; 546255000; 548528000; 549059000; 564426000  
 CC 73-11 (Optical, Electron, and Mass Spectroscopy and  
 Other Related Properties)  
 IT 813437-46-6 813437-47-7D, derivs.  
 813437-48-8 813467-72-0 813467-72-0D,  
 derivs. 813467-73-1 813467-74-2  
 813467-76-4 813467-77-5 813467-81-1  
 (organic electroluminescent device with anthracene derivative)  
 IT 813437-47-7P 813467-75-3P 813467-78-6P  
 813467-79-7P 813467-80-0P  
 (organic electroluminescent device with anthracene derivative)  
 IT 122-39-4, Diphenyl amine, reactions 626-39-1,  
 1,3,5-Tribromobenzene 32316-92-0, Naphthalene 2-boronic acid  
 100622-34-2, 9-Anthryl boronic acid 361486-60-4  
 654067-65-9 813461-32-4 813461-33-5  
 (organic electroluminescent device with anthracene derivative)  
 IT 713542-04-2P 813461-31-3P 813461-34-6P  
 (organic electroluminescent device with anthracene derivative)

L40 ANSWER 3 OF 65 CAPLUS COPYRIGHT 2005 ACS on STN  
 ACCESSION NUMBER: 2004:1154384 CAPLUS  
 DOCUMENT NUMBER: 142:82015  
 TITLE: Organic electroluminescent device with  
 anthracene derivative  
 INVENTOR(S): Okinaka, Keiji; Saitoh, Akihito; Suzuki,  
 Koichi; Senoo, Akihiro; Ueno, Kazunori  
 PATENT ASSIGNEE(S): Canon Kabushiki Kaisha, Japan

SOURCE: Eur. Pat. Appl., 34 pp.  
 CODEN: EPXXDW  
 DOCUMENT TYPE: Patent  
 LANGUAGE: English  
 FAMILY ACC. NUM. COUNT: 1  
 PATENT INFORMATION:

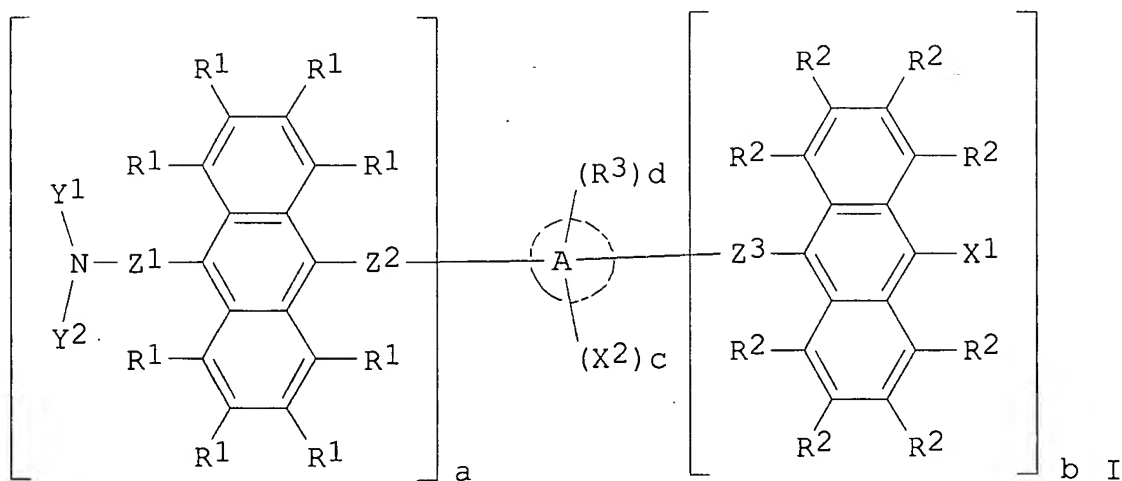
PATENT NO. -----	KIND ----	DATE -----	APPLICATION NO. -----	DATE
EP 1491610	A2	20041229	EP 2004-14987	2004 0625

R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE,  
 MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR, BG, CZ,  
 EE, HU, PL, SK, HR

US 2004265632	A1	20041230	US 2004-875242	2004 0625
PRIORITY APPLN. INFO.:			JP 2003-184262	A 2003 0627

			JP 2004-149953	A 2004 0520
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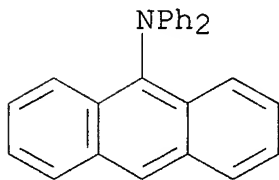


AB The invention refers to an organic electroluminescent device w high-efficiency optical output, high luminance and long life, comprising at least one **layer** having a **light-emitting** region containing a compound I [A = a mol. unit containing an aromatic ring, condensed polycyclic ring, or heterocycle; Y1,2 = (un)substituted alkyl, aralkyl, aryl, heterocycle or divalent substituent having a linking group where Y1 and Y2 may be linked together to form a ring; Z1 = direct bond, (un)substituted arylene, divalent heterocycle, or divalent substituent having a linking group; Z2,3 = direct bond, (un)substituted alkylene, alkenylene, alkynylene, aralkynylene arylene, divalent heterocycle or divalent substituent having a linking group; X1 = H, D, halo, (un)substituted alkyl, alkenyl, alkynyl, aralkyl, alkoxy, sulfide, aryl heterocycle, substituted silyl, boranyl or divalent substituent having a linking group; X2 = (un)substituted aryl, heterocycle or divalent substituent having a linking group; R1,2 = H, D, halo, (un)substituted alkyl, aryl, alkoxy or amino; R3 = H, D, halo, (un)substituted alkyl or alkoxy; a = 0 - 6; b + c + d = 6 - a, where a + b  $\geq$  2, and when a = 0 at least one of X1 on the anthryl group contains a substituent other than H, D or halo] and a 2nd compound having a band gap larger than a band gap of the 1st compound

IT 62770-62-1 223726-72-5 361486-60-4  
 607739-80-0 608130-98-9 668994-20-5  
 669015-98-9 813437-42-2 813437-43-3  
 813437-44-4 813437-45-5 813437-46-6  
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 813437-50-2  
 (organic electroluminescent device with anthracene derivative)

RN 62770-62-1 CAPLUS

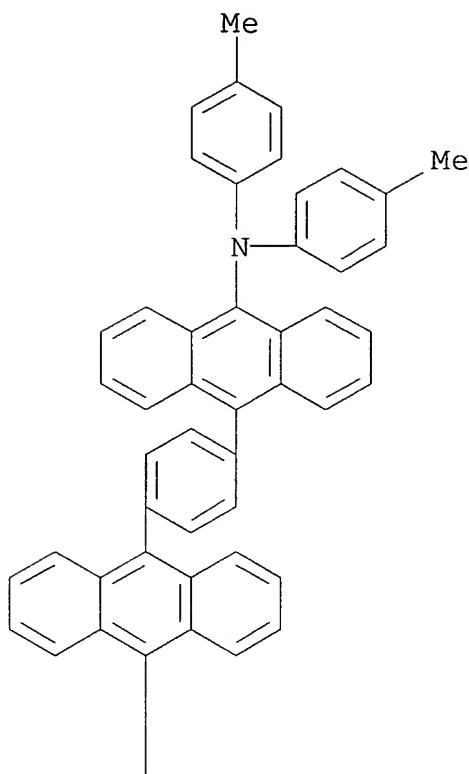
CN 9-Anthracenamine, N,N-diphenyl- (9CI) (CA INDEX NAME)



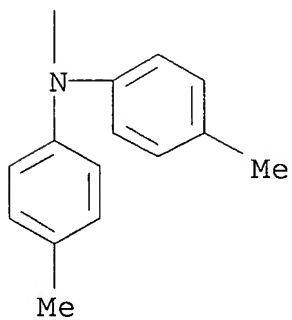
RN 223726-72-5 CAPLUS

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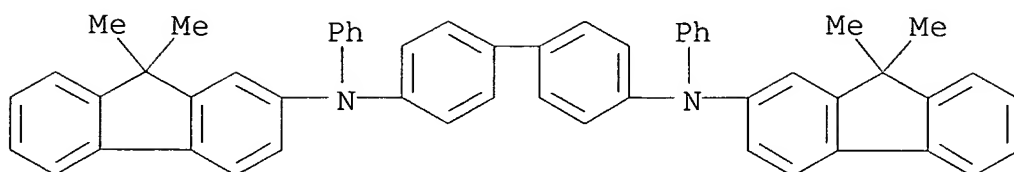
PAGE 1-A



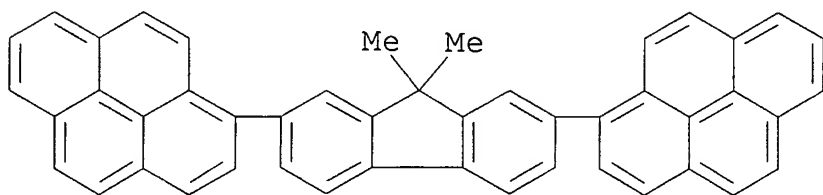
PAGE 2-A



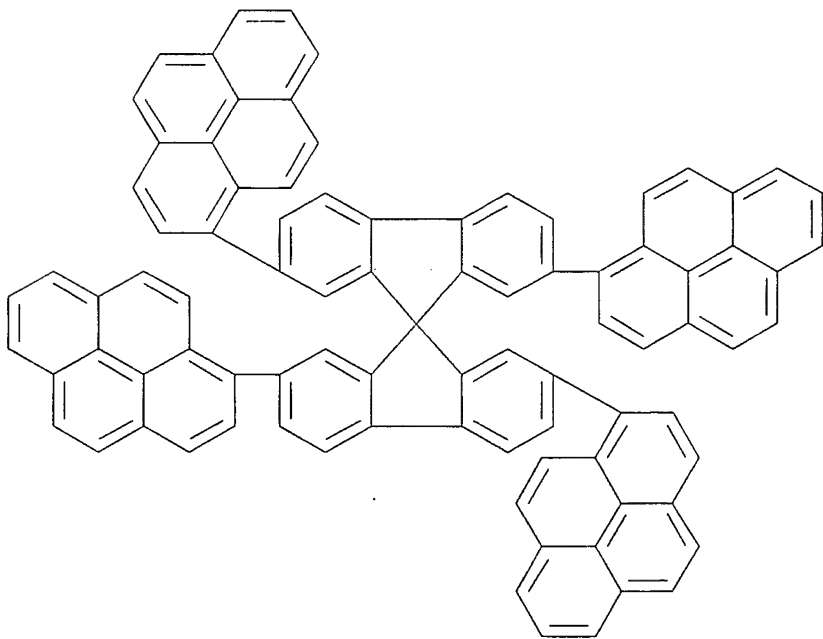
RN 361486-60-4 CAPLUS  
 CN [1,1'-Biphenyl]-4,4'-diamine, N,N'-bis(9,9-dimethyl-9H-fluoren-2-yl)-N,N'-diphenyl- (9CI) (CA INDEX NAME)



RN 607739-80-0 CAPLUS

CN Pyrene, 1,1'-(9,9-dimethyl-9H-fluorene-2,7-diyl)bis- (9CI) (CA  
INDEX NAME)

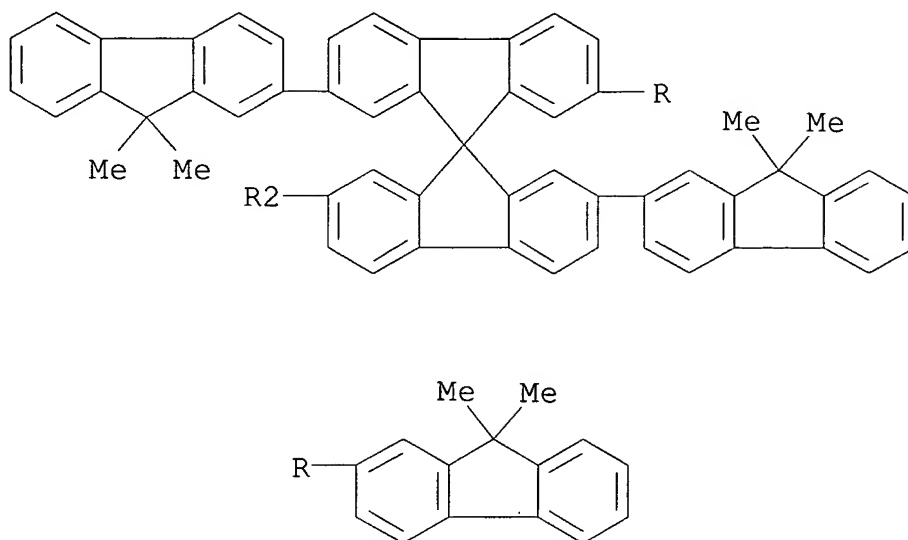
RN 608130-98-9 CAPLUS

CN 9,9'-Spirobi[9H-fluorene], 2,2',7,7'-tetra-1-pyrenyl- (9CI) (CA  
INDEX NAME)

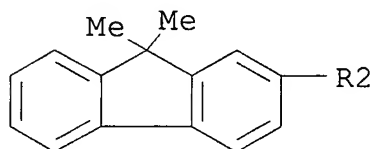
RN 668994-20-5 CAPLUS

CN 9,9'-Spirobi[9H-fluorene], 2,2',7,7'-tetrakis(9,9-dimethyl-9H-fluoren-2-yl)- (9CI) (CA INDEX NAME)

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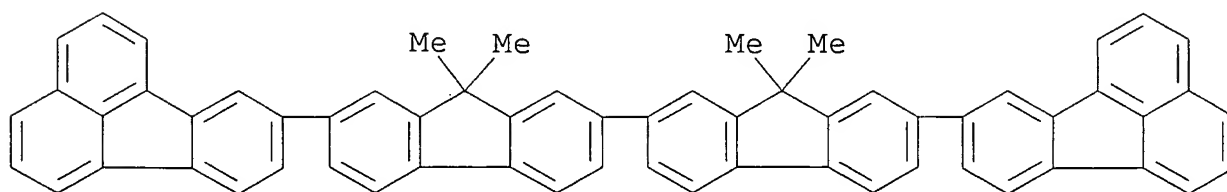


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RN 669015-98-9 CAPLUS

CN Fluoranthene, 8,8'-(9,9,9',9'-tetramethyl[2,2'-bi-9H-fluorene]-7,7'-diyl)bis- (9CI) (CA INDEX NAME)

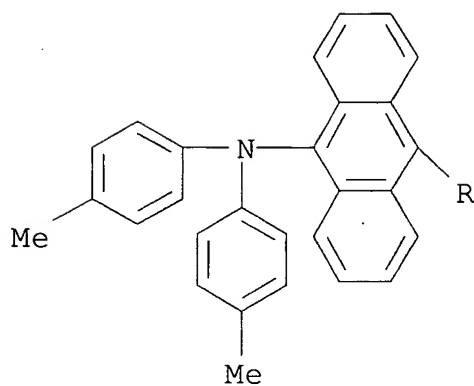
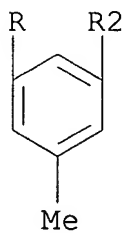


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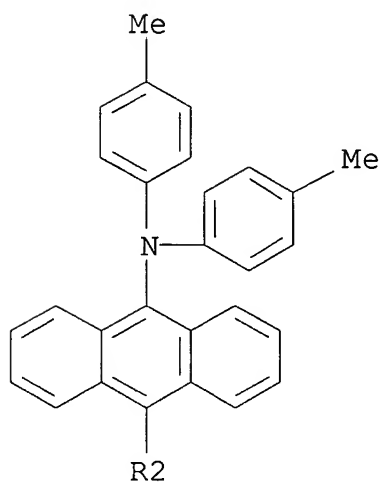
CN INDEX NAME NOT YET ASSIGNED



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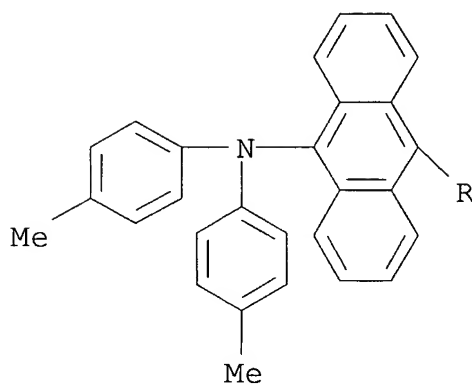
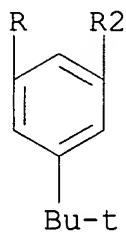


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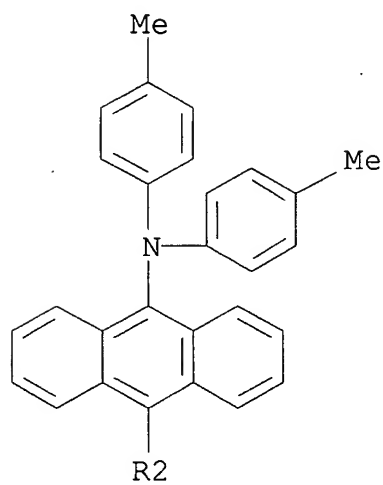


.CN INDEX NAME NOT YET ASSIGNED

PAGE 1-A

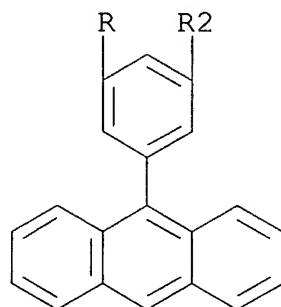


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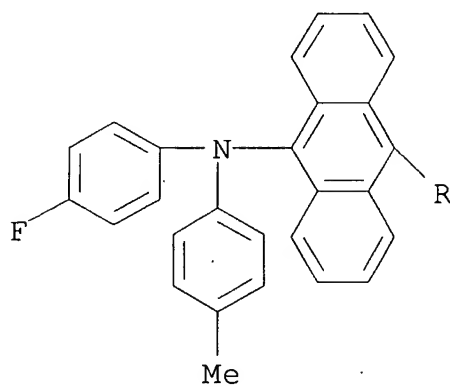


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CN INDEX NAME NOT YET ASSIGNED

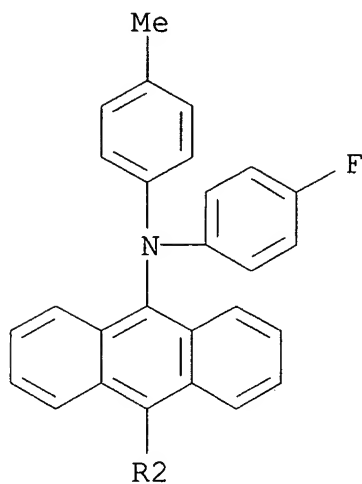
PAGE 1-A



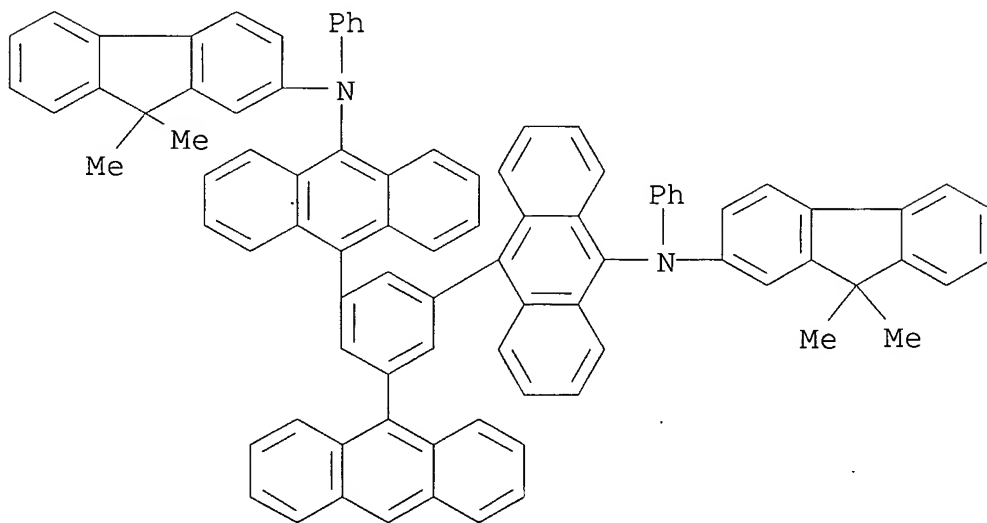
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PAGE 3-A

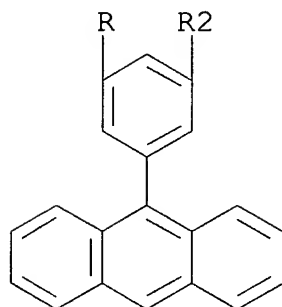


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CN INDEX NAME NOT YET ASSIGNED

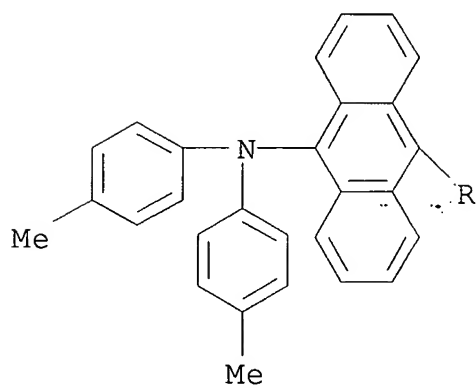


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CN INDEX NAME NOT YET ASSIGNED

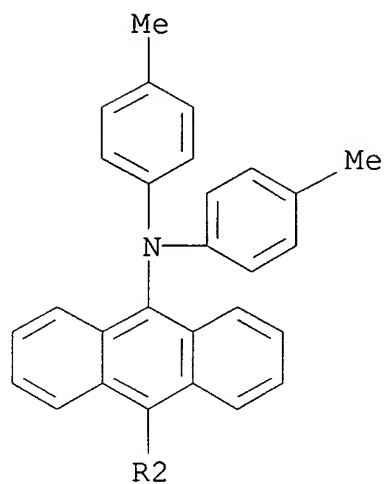
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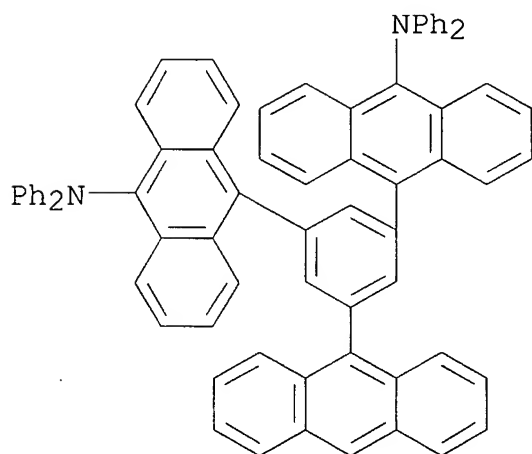
PAGE 2-A



PAGE 3-A

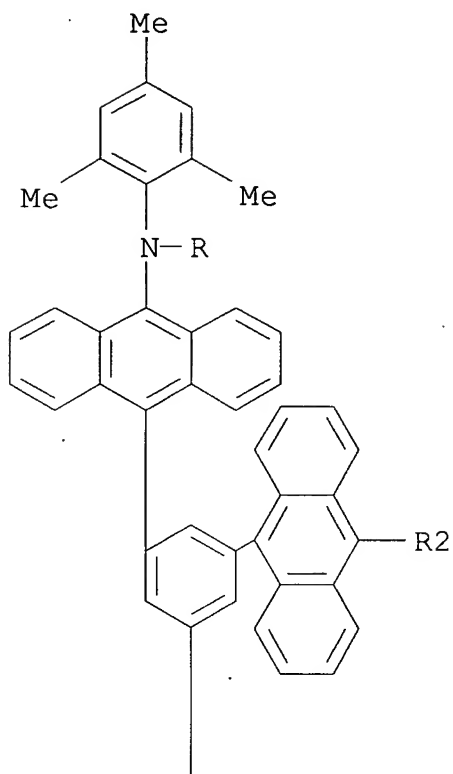


RN 813437-47-7 CAPLUS  
CN INDEX NAME NOT YET ASSIGNED

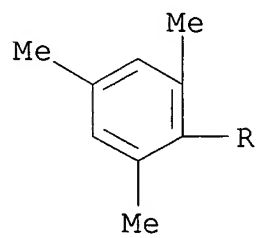
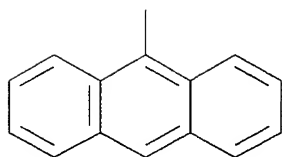


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CN INDEX NAME NOT YET ASSIGNED

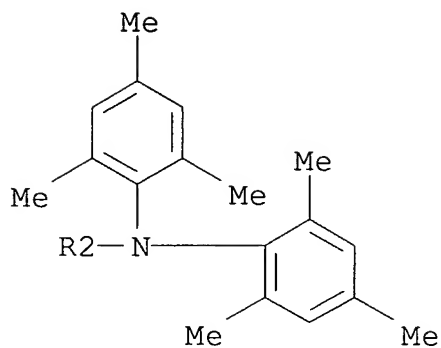
PAGE 1-A



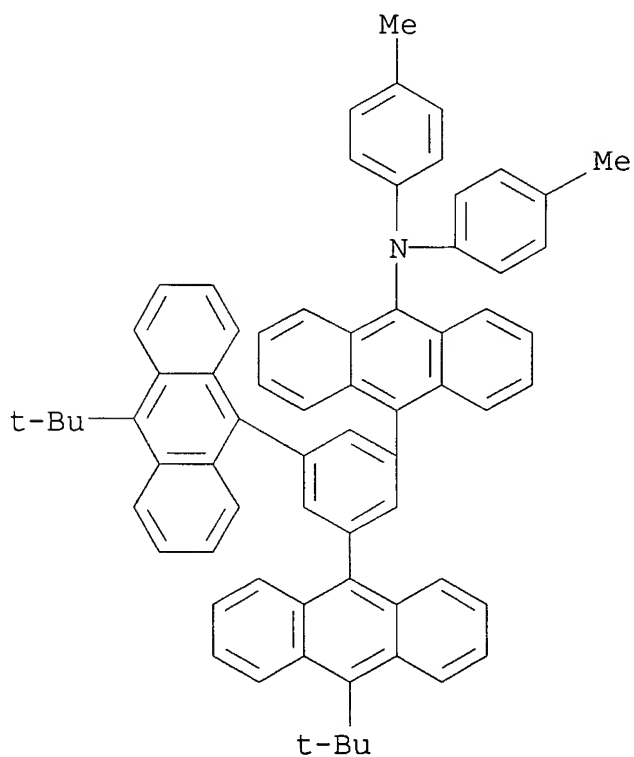
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PAGE 3-A

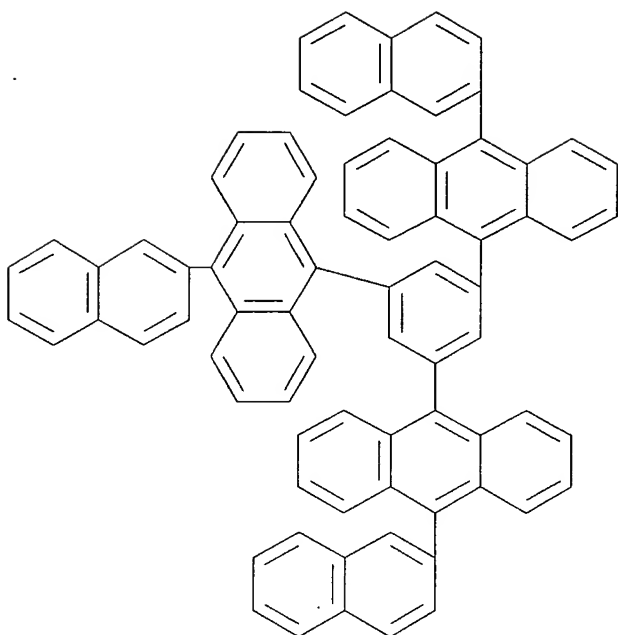


RN 813437-49-9 CAPLUS  
 CN 9-Anthracenamine, 10-[3,5-bis[10-(1,1-dimethylethyl)-9-anthracenyl]phenyl]-N,N-bis(4-methylphenyl)- (9CI) (CA INDEX NAME)



RN 813437-50-2 CAPLUS  
 CN INDEX NAME NOT YET ASSIGNED





IC ICM C09K011-06  
ICS H05B033-14; H01L051-30  
CC 73-11 (Optical, Electron, and Mass Spectroscopy and  
Other Related Properties)  
IT 2085-33-8, Alq3 62770-62-1 223726-72-5  
361486-60-4 607739-80-0 608130-98-9  
668994-20-5 669015-98-9 813437-42-2  
813437-43-3 813437-44-4 813437-45-5  
813437-46-6 813437-47-7 813437-48-8  
813437-49-9 813437-50-2  
(organic electroluminescent device with anthracene derivative)

L40 ANSWER 4 OF 65 CAPLUS COPYRIGHT 2005 ACS on STN  
ACCESSION NUMBER: 2004:1080141 CAPLUS  
DOCUMENT NUMBER: 142:45705  
TITLE: Organic electroluminescent devices of long  
life and high **luminescent** efficiency  
INVENTOR(S): Kitagawa, Sumiko; Inoue, Tetsuji; Uchida,  
Manabu; Koike, Toshihiro  
PATENT ASSIGNEE(S): TDK Corporation, Japan; Chisso Corp.  
SOURCE: Jpn. Kokai Tokkyo Koho, 40 pp.  
CODEN: JKXXAF  
DOCUMENT TYPE: Patent  
LANGUAGE: Japanese  
FAMILY ACC. NUM. COUNT: 1  
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 2004356033	A2	20041216	JP 2003-154999	2003 0530
PRIORITY APPLN. INFO.:			JP 2003-154999	2003 0530

GI

\* STRUCTURE DIAGRAM TOO LARGE FOR DISPLAY - AVAILABLE VIA OFFLINE PRINT  
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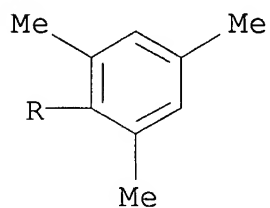
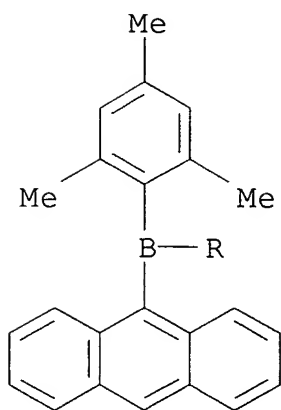
AB The devices have organic emitting **layers** including one which contains phenylanthracene derivative I or II [R1 R3 = alkyl, aryl; r1 = 0-8; R2, R4, R5 = (cyclo)alkyl, aryl(oxy), alkenyl, alkoxy, amino, heterocycle; r2 = 0-5; L1 = single bond, arylene; r3 = 0-7] as host materials and borane derivative III (R01-R08, X, Y, Z1, Z2 = H, hydrocarbyl, aromatic group, heterocycle, etc.; n = 1-3) as guest materials.

IT 50418-09-2 172285-83-5 281668-51-7  
312497-12-4 368868-89-7 368868-92-2  
805252-95-3 805252-96-4 805252-97-5  
(host-guest emitting **layers**; long-life and  
high-luminance organic EL devices containing phenylanthracene  
derivs.

and borane derivs. in same **layers**)

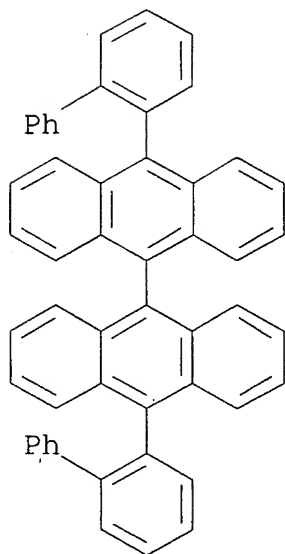
RN 50418-09-2 CAPLUS

CN Borane, 9-anthracenylbis(2,4,6-trimethylphenyl)- (9CI) (CA INDEX  
NAME)



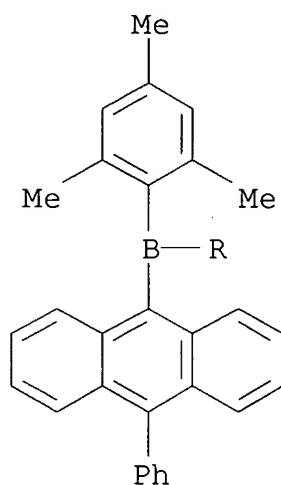
RN 172285-83-5 CAPLUS

CN 9,9'-Bianthrane, 10,10'-bis([1,1'-biphenyl]-2-yl)- (9CI) (CA  
INDEX NAME)

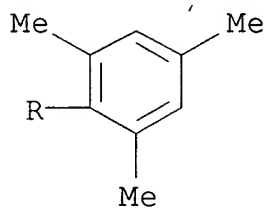


RN 281668-51-7 CAPLUS  
CN Borane, (10-phenyl-9-anthracenyl)bis(2,4,6-trimethylphenyl)- (9CI)  
(CA INDEX NAME)

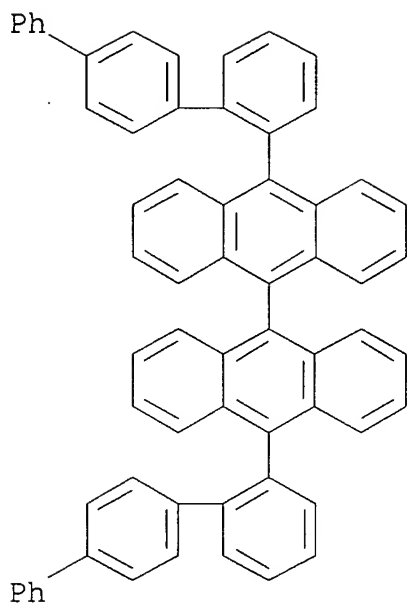
PAGE 1-A



PAGE 2-A



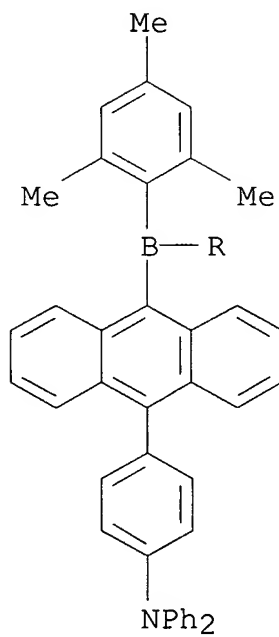
RN 312497-12-4 CAPLUS  
CN 9,9'-Bianthracene, 10,10'-bis([1,1':4',1''-terphenyl]-2-yl)- (9CI)  
(CA INDEX NAME)



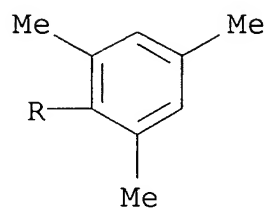
RN 368868-89-7 CAPLUS

CN Benzenamine, 4-[10-[bis(2,4,6-trimethylphenyl)boryl]-9-anthracenyl]-N,N-diphenyl- (9CI) (CA INDEX NAME)

PAGE 1-A

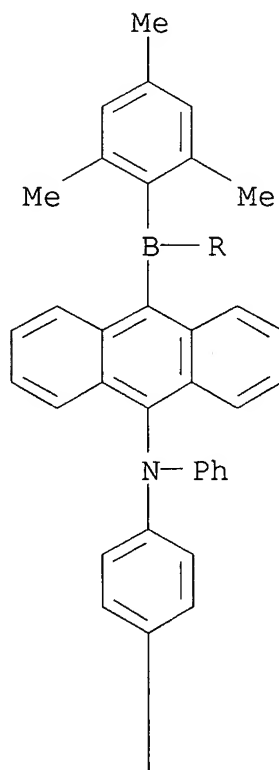


PAGE 2-A

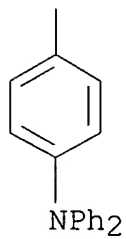


RN 368868-92-2 CAPLUS  
CN [1,1'-Biphenyl]-4,4'-diamine, N-[10-[bis(2,4,6-trimethylphenyl)boryl]-9-anthracenyl]-N,N',N'-triphenyl- (9CI)  
(CA INDEX NAME)

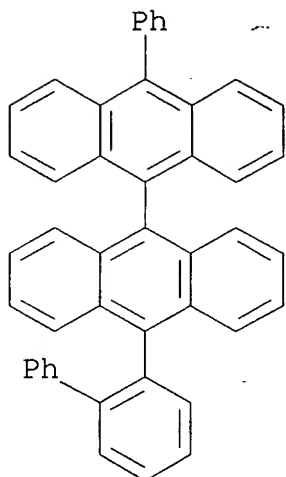
PAGE 1-A



PAGE 2-A

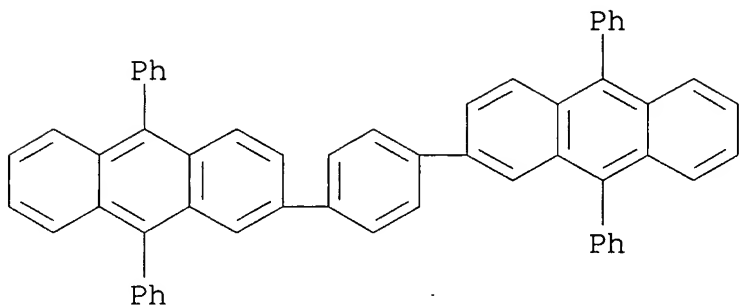


CN INDEX NAME NOT YET ASSIGNED



RN 805252-97-5 CAPLUS

CN Anthracene, 2,2'-(1,4-phenylene)bis[9,10-diphenyl- (9CI) (CA  
INDEX NAME)



IC ICM H05B033-14

ICS C09K011-06

CC 73-11 (Optical, Electron, and Mass Spectroscopy and  
Other Related Properties)

ST phenylanthracene borane org electroluminescent device emitting  
layer; life luminescent efficiency org  
electroluminescent device

IT Electroluminescent devices

(organic; long-life and high-luminance organic EL devices  
containing

phenylanthracene derivs. and borane derivs. in same  
layers)

IT 50418-09-2 172285-83-5 281668-51-7



312497-12-4 368868-89-7 368868-92-2

805252-95-3 805252-96-4 805252-97-5

(host-guest emitting **layers**; long-life and  
high-luminance organic EL devices containing phenylanthracene  
derivs.  
and borane derivs. in same **layers**)

L40 ANSWER 5 OF 65 CAPLUS COPYRIGHT 2005 ACS on STN

ACCESSION NUMBER: 2004:1058328 CAPLUS

DOCUMENT NUMBER: 142:45660

TITLE: Amine compounds having 9H-fluorene backbones  
and their organic electroluminescent (EL)  
devicesINVENTOR(S): Totani, Yoshiyuki; Tsukada, Hidetaka; Tanabe,  
Yoshimitsu; Shimamura, Takehiko

PATENT ASSIGNEE(S): Mitsui Chemicals Inc., Japan

SOURCE: Jpn. Kokai Tokkyo Koho, 32 pp.

CODEN: JKXXAF

DOCUMENT TYPE: Patent

LANGUAGE: Japanese

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
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JP 2004345960	A2	20041209	JP 2003-138769	

2003  
0516

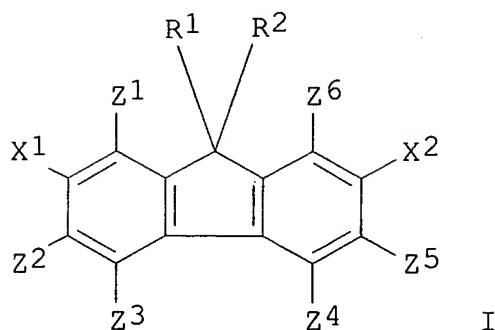
PRIORITY APPLN. INFO.:

JP 2003-87560

A

2003  
0327

GI



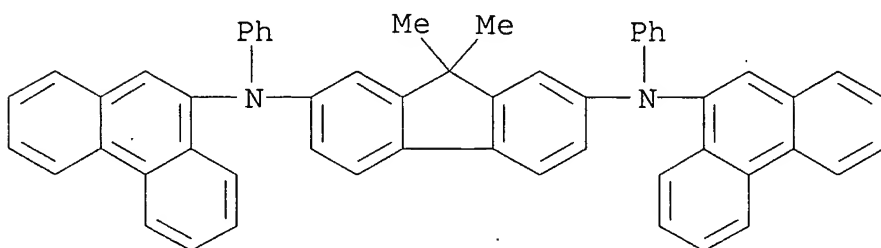
AB The amine compds. are represented by the general formula I (X1 = N-carbazolyl, NAr1Ar2; X2 = NAr3Ar4; Ar1-Ar4 = aryl; Z1-Z6 = H, halogen, OnZ; Z = alkyl, aryl; n = 0, 1; R1, R2 = H, alkyl, aryl, aralkyl;  $\geq 1$  of Ar1-Ar4 are phenanthryl). The organic EL devices contain  $\geq 1$  **layers** containing  $\geq 1$  of the amine compds. I between a pair of electrodes. The I-containing **layers** will function as hole-injection/transporting **layers** or **light-emitting layers**. The organic EL devices have excellent heat resistance, long emission life, and durability.

IT 669773-71-1P 779356-00-2P 805241-83-2P  
805241-87-6P 805241-89-8P 805241-91-2P  
805241-93-4P 805241-95-6P 805241-97-8P  
805241-99-0P 805242-01-7P 805242-03-9P

(amine compds. having 9H-fluorene backbones for heat-resistant organic EL devices)

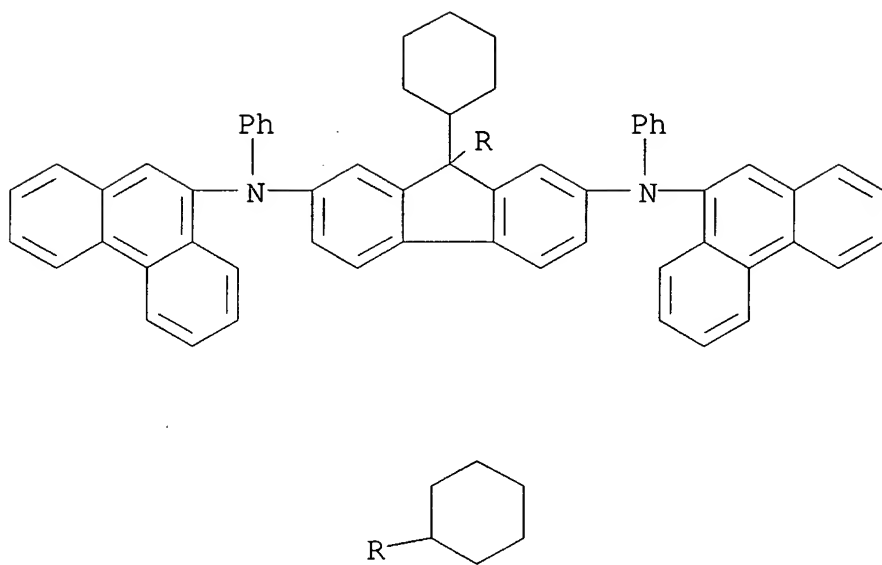
RN 669773-71-1 CAPLUS

CN 9H-Fluorene-2,7-diamine, 9,9-dimethyl-N,N'-di-9-phenanthrenyl-N,N'-diphenyl- (9CI) (CA INDEX NAME)



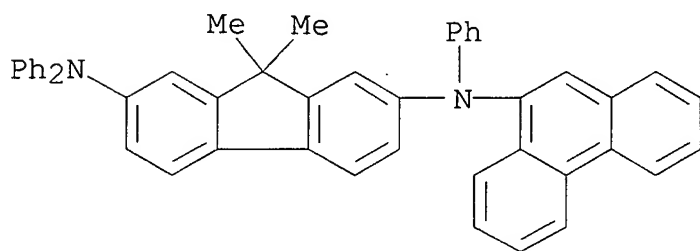
RN 779356-00-2 CAPLUS

CN 9H-Fluorene-2,7-diamine, 9,9-dicyclohexyl-N,N'-di-9-phenanthrenyl-N,N'-diphenyl- (9CI) (CA INDEX NAME)



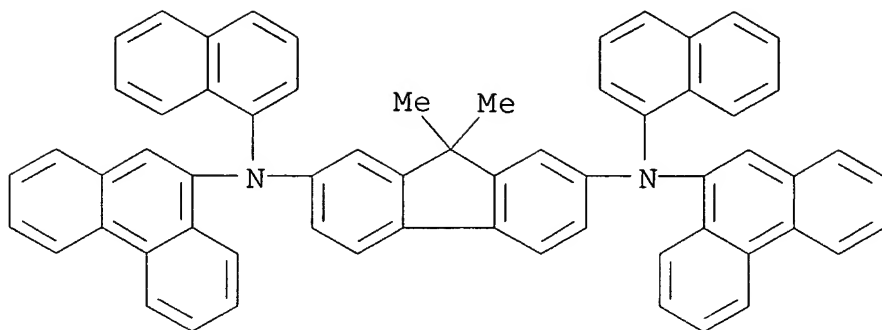
RN 805241-83-2 CAPLUS

CN 9H-Fluorene-2,7-diamine, 9,9-dimethyl-N-9-phenanthrenyl-N,N',N'-triphenyl- (9CI) (CA INDEX NAME)



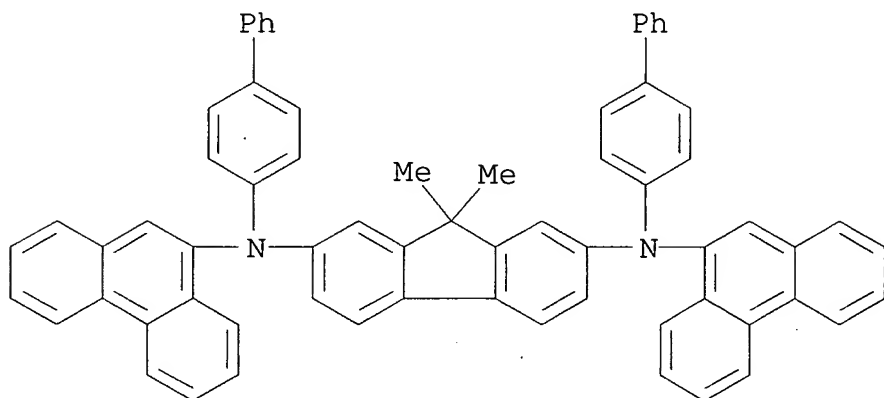
RN 805241-87-6 CAPLUS

CN 9H-Fluorene-2,7-diamine, 9,9-dimethyl-N,N'-di-1-naphthalenyl-N,N'-di-9-phenanthrenyl- (9CI) (CA INDEX NAME)



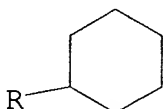
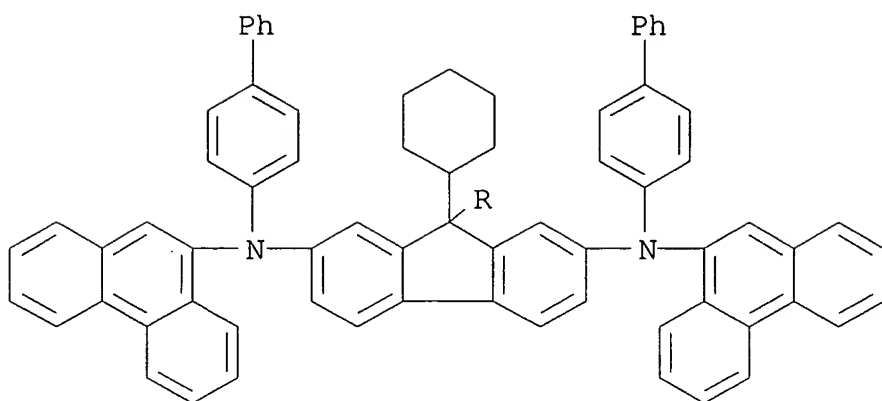
RN 805241-89-8 CAPLUS

CN 9H-Fluorene-2,7-diamine, N,N'-bis([1,1'-biphenyl]-4-yl)-9,9-dimethyl-N,N'-di-9-phenanthrenyl- (9CI) (CA INDEX NAME)



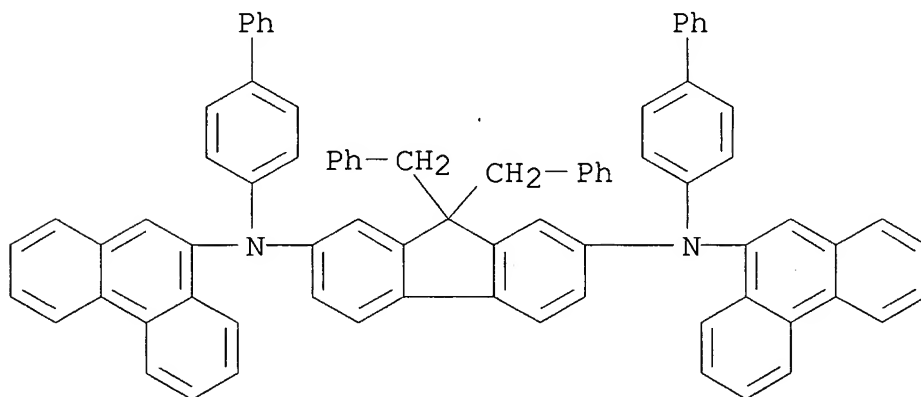
RN 805241-91-2 CAPLUS

CN 9H-Fluorene-2,7-diamine, N,N'-bis([1,1'-biphenyl]-4-yl)-9,9-dicyclohexyl-N,N'-di-9-phenanthrenyl- (9CI) (CA INDEX NAME)



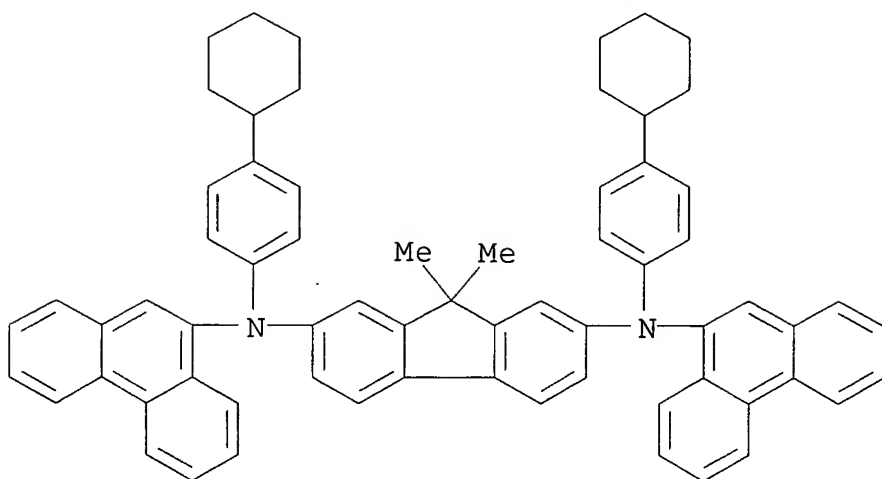
RN 805241-93-4 CAPLUS

CN 9H-Fluorene-2,7-diamine, N,N'-bis([1,1'-biphenyl]-4-yl)-N,N'-di-9-phenanthrenyl-9,9-bis(phenylmethyl)- (9CI) (CA INDEX NAME)



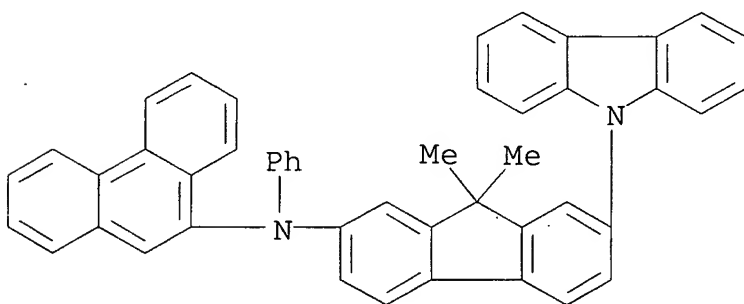
RN 805241-95-6 CAPLUS

CN 9H-Fluorene-2,7-diamine, N,N'-bis(4-cyclohexylphenyl)-9,9-dimethyl-N,N'-di-9-phenanthrenyl- (9CI) (CA INDEX NAME)



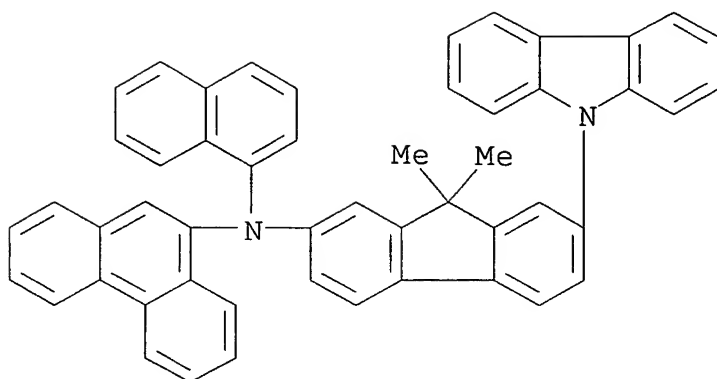
RN 805241-97-8 CAPLUS

CN 9-Phenanthrenamine, N-[7-(9H-carbazol-9-yl)-9,9-dimethyl-9H-fluoren-2-yl]-N-phenyl- (9CI) (CA INDEX NAME)



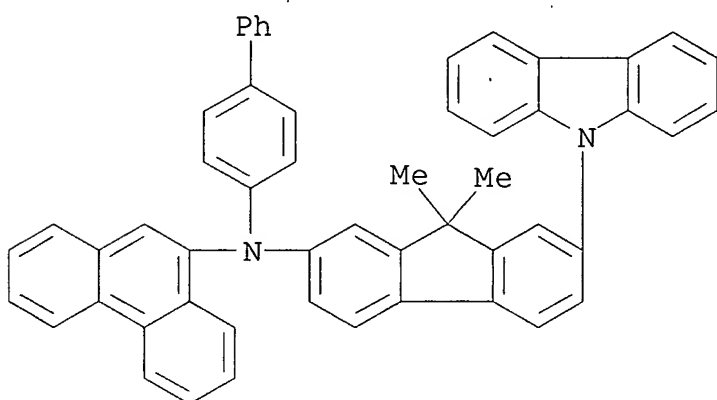
RN 805241-99-0 CAPLUS

CN 9-Phenanthrenamine, N-[7-(9H-carbazol-9-yl)-9,9-dimethyl-9H-fluoren-2-yl]-N-1-naphthalenyl- (9CI) (CA INDEX NAME)



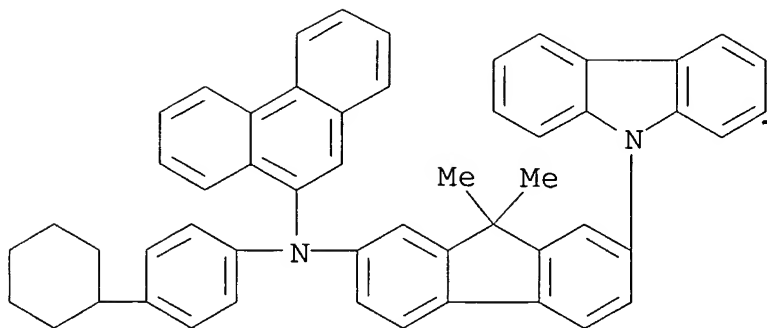
RN 805242-01-7 CAPLUS

CN 9-Phenanthrenamine, N-[1,1'-biphenyl]-4-yl-N-[7-(9H-carbazol-9-yl)-9,9-dimethyl-9H-fluoren-2-yl]- (9CI) (CA INDEX NAME)



RN 805242-03-9 CAPLUS

CN 9-Phenanthrenamine, N-[7-(9H-carbazol-9-yl)-9,9-dimethyl-9H-fluoren-2-yl]-N-(4-cyclohexylphenyl)- (9CI) (CA INDEX NAME)

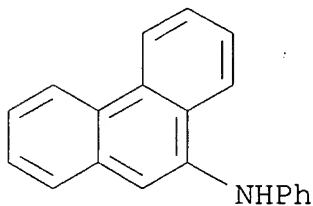


IT 3920-79-4P 605630-42-0P

(amine compds. having 9H-fluorene backbones for heat-resistant organic EL devices)

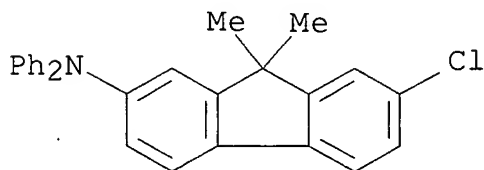
RN 3920-79-4 CAPLUS

CN 9-Phenanthrenamine, N-phenyl- (9CI) (CA INDEX NAME)



RN 605630-42-0 CAPLUS

CN 9H-Fluoren-2-amine, 7-chloro-9,9-dimethyl-N,N-diphenyl- (9CI) (CA INDEX NAME)



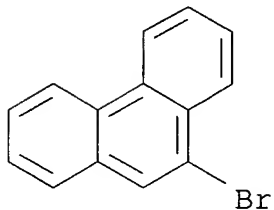
IT 573-17-1, 9-Bromophenanthrene 144981-86-2,  
2,7-Diiodo-9,9-dimethyl-9H-fluorene 443965-64-8  
498572-37-5 498572-37-5D, N-(9'-phenanthryl)-4-  
phenylaniline 605630-40-8 729569-84-0  
768398-91-0 799560-22-8 805242-14-2

(amine compds. having 9H-fluorene backbones for heat-resistant organic EL devices)

RN 573-17-1 CAPLUS

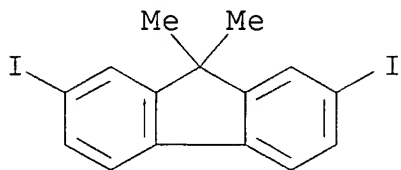


CN Phenanthrene, 9-bromo- (6CI, 7CI, 8CI, 9CI) (CA INDEX NAME)



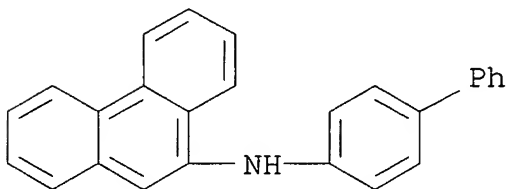
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CN 9H-Fluorene, 2,7-diiodo-9,9-dimethyl- (9CI) (CA INDEX NAME)



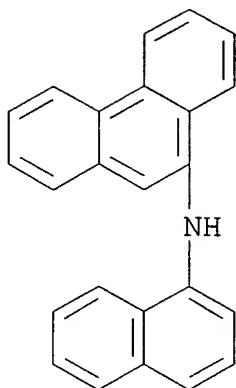
RN 443965-64-8 CAPLUS

CN 9-Phenanthrenamine, N-[1,1'-biphenyl]-4-yl- (9CI) (CA INDEX NAME)



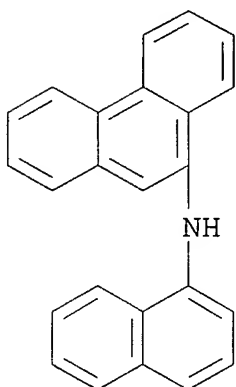
RN 498572-37-5 CAPLUS

CN 9-Phenanthrenamine, N-1-naphthalenyl- (9CI) (CA INDEX NAME)



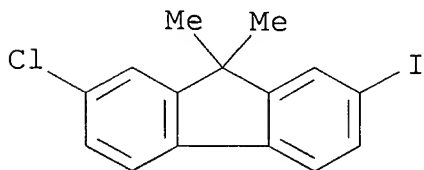
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CN 9-Phenanthrenamine, N-1-naphthalenyl- (9CI) (CA INDEX NAME)



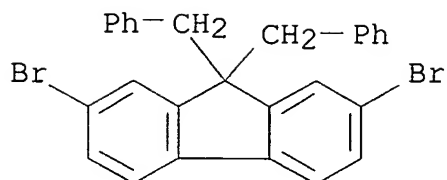
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CN 9H-Fluorene, 2-chloro-7-iodo-9,9-dimethyl- (9CI) (CA INDEX NAME)



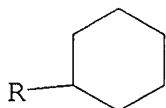
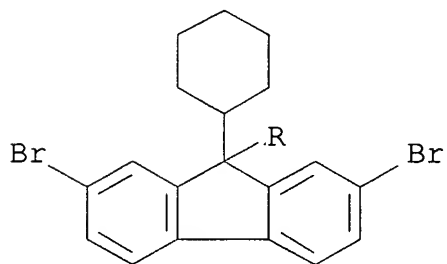
RN 729569-84-0 CAPLUS

CN 9H-Fluorene, 2,7-dibromo-9,9-bis(phenylmethyl)- (9CI) (CA INDEX NAME)



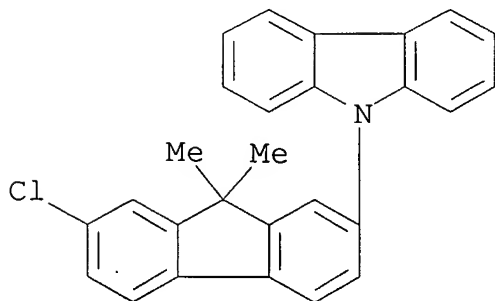
RN 768398-91-0 CAPLUS

CN 9H-Fluorene, 2,7-dibromo-9,9-dicyclohexyl- (9CI) (CA INDEX NAME)



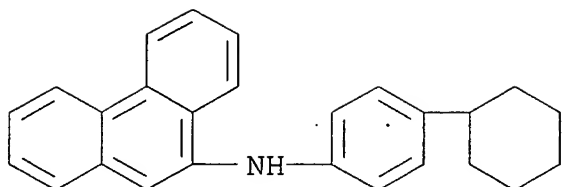
RN 799560-22-8 CAPLUS

CN 9H-Carbazole, 9-(7-chloro-9,9-dimethyl-9H-fluoren-2-yl)- (9CI)  
(CA INDEX NAME)



RN 805242-14-2 CAPLUS

CN 9-Phenanthrenamine, N-(4-cyclohexylphenyl)- (9CI) (CA INDEX NAME)



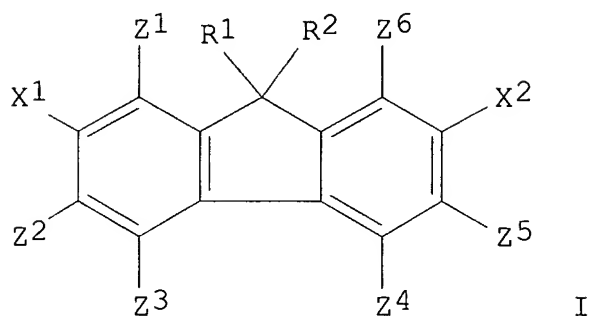
IC ICM C07C211-61  
ICS C07D209-86; C09K011-06; H05B033-14; H05B033-22  
CC 73-11 (Optical, Electron, and Mass Spectroscopy and  
Other Related Properties)  
Section cross-reference(s): 25  
IT 669773-71-1P 779356-00-2P 805241-83-2P  
805241-87-6P 805241-89-8P 805241-91-2P  
805241-93-4P 805241-95-6P 805241-97-8P  
805241-99-0P 805242-01-7P 805242-03-9P  
(amine compds. having 9H-fluorene backbones for heat-resistant  
organic EL devices)  
IT 3920-79-4P 605630-42-0P  
(amine compds. having 9H-fluorene backbones for heat-resistant  
organic EL devices)  
IT 62-53-3, Aniline, reactions 92-67-1, 4-Phenylaniline 122-39-4,  
N,N-Diphenylamine, reactions 573-17-1,  
9-Bromophenanthrene 6373-50-8, 4-Cyclohexylaniline  
144981-86-2, 2,7-Diiodo-9,9-dimethyl-9H-fluorene  
443965-64-8 498572-37-5 498572-37-5D,  
N-(9'-phenanthryl)-4-phenylaniline 605630-40-8  
729569-84-0 768398-91-0 799560-22-8  
805242-14-2  
(amine compds. having 9H-fluorene backbones for heat-resistant  
organic EL devices)

L40 ANSWER 6 OF 65 CAPLUS - COPYRIGHT 2005 ACS on STN  
ACCESSION NUMBER: 2004:1035551 CAPLUS  
DOCUMENT NUMBER: 142:29756  
TITLE: Organic electroluminescent devices and  
heat-resistant durable fluorenylamines  
therefor  
INVENTOR(S): Totani, Yoshiyuki; Shimamura, Takehiko;  
Tanabe, Yoshimitsu; Tsukada, Hidetaka  
PATENT ASSIGNEE(S): Mitsui Chemicals Inc., Japan  
SOURCE: Jpn. Kokai Tokkyo Koho, 32 pp.  
CODEN: JKXXAF  
DOCUMENT TYPE: Patent  
LANGUAGE: Japanese  
FAMILY ACC. NUM. COUNT: 1

## PATENT INFORMATION:

PATENT NO. -----	KIND ----	DATE -----	APPLICATION NO. -----	DATE
JP 2004339064	A2	20041202	JP 2003-133908	2003 0513
PRIORITY APPLN. INFO.:			JP 2003-133908	2003 0513

GI



AB The fluorenylamines are I [X1 = N-carbazolyl, NAr1Ar2; X2 = NAr3Ar4; Ar1-Ar4 = aryl;  $\geq 1$  of Ar1-Ar4 = fluorenyl; Z1-Z6 = H, halo, OnZ; Z = linear, branched, or cyclic alkyl, aryl; n = 0, 1; R1, R2 = H, linear, branched, or cyclic alkyl, aryl, aralkyl]. Also claimed are electroluminescent devices having  $\geq 1$  layers (e.g., hole-injection/transport layers, luminescent layers) containing the amines between a pair of electrodes.

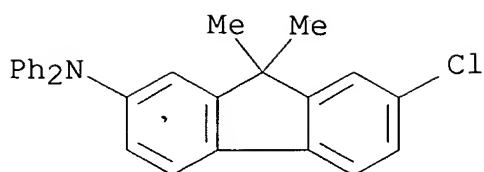
IT 605630-42-0P 799560-22-8P

(in preparation of amines; organic electroluminescent devices containing

fluorenyl fluorenylamines with good heat resistance and durability)

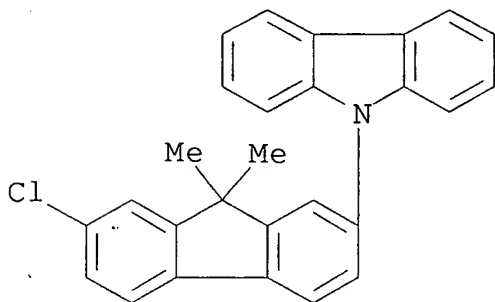
RN 605630-42-0 CAPLUS

CN 9H-Fluoren-2-amine, 7-chloro-9,9-dimethyl-N,N-diphenyl- (9CI) (CA INDEX NAME)



RN 799560-22-8 CAPLUS

CN 9H-Carbazole, 9-(7-chloro-9,9-dimethyl-9H-fluoren-2-yl)- (9CI)  
(CA INDEX NAME)



IT 144981-86-2, 2,7-Diiodo-9,9-dimethyl-9H-fluorene

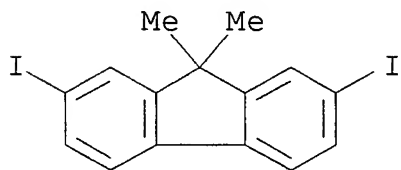
605630-40-8 729569-84-0 768398-91-0

(in preparation of amines; organic electroluminescent devices  
containing

fluoranthenyl fluorenylamines with good heat resistance and  
durability)

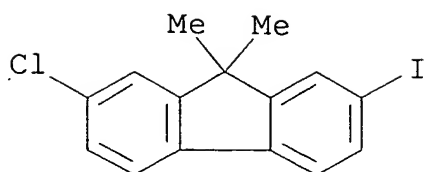
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CN 9H-Fluorene, 2,7-diiodo-9,9-dimethyl- (9CI) (CA INDEX NAME)

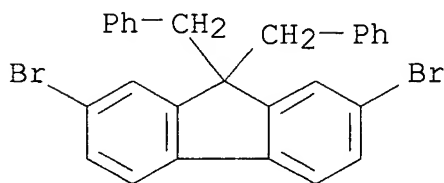


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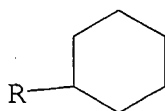
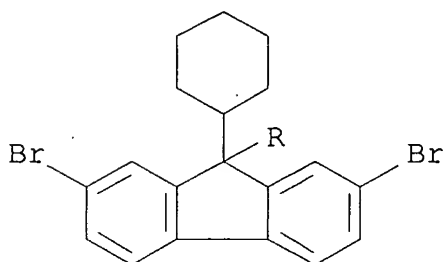
CN 9H-Fluorene, 2-chloro-7-iodo-9,9-dimethyl- (9CI) (CA INDEX NAME)



RN 729569-84-0 CAPLUS  
 CN 9H-Fluorene, 2,7-dibromo-9,9-bis(phenylmethyl)- (9CI) (CA INDEX NAME)

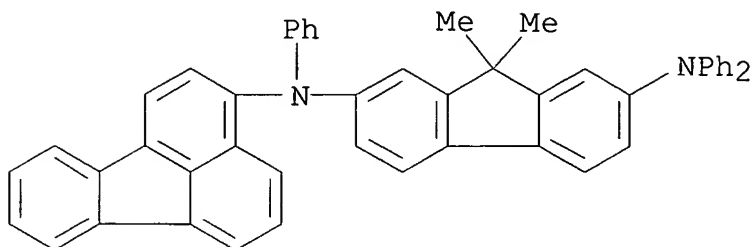


RN 768398-91-0 CAPLUS  
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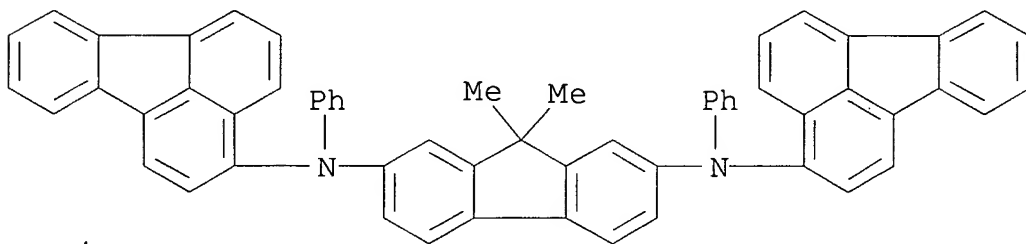
IT 799559-66-3P 799559-69-6P 799559-73-2P  
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 799559-87-8P 799559-91-4P 799559-95-8P  
 799559-98-1P  
 (organic electroluminescent devices containing fluoranthenyl  
 fluorenylamines with good heat resistance and durability)  
 RN 799559-66-3 CAPLUS

CN 9H-Fluorene-2,7-diamine, N-3-fluoranthenyl-9,9-dimethyl-N,N',N'-triphenyl- (9CI) (CA INDEX NAME)



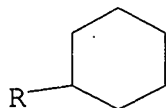
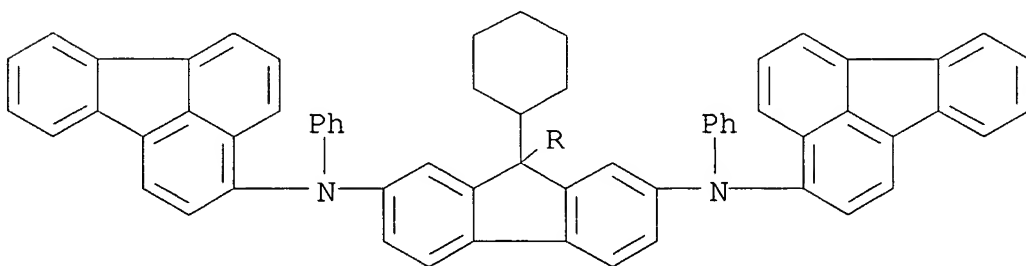
RN 799559-69-6 CAPLUS

CN 9H-Fluorene-2,7-diamine, N,N'-bis(3-fluoranthenyl)-9,9-dimethyl-N,N'-diphenyl- (9CI) (CA INDEX NAME)



RN 799559-73-2 CAPLUS

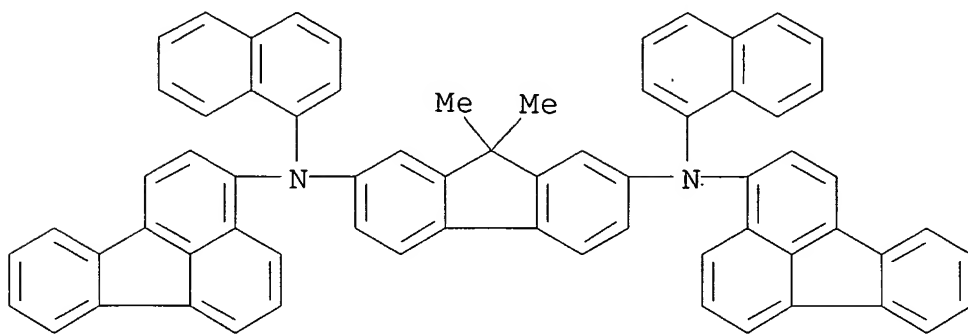
CN 9H-Fluorene-2,7-diamine, 9,9-dicyclohexyl-N,N'-bis(3-fluoranthenyl)-N,N'-diphenyl- (9CI) (CA INDEX NAME)





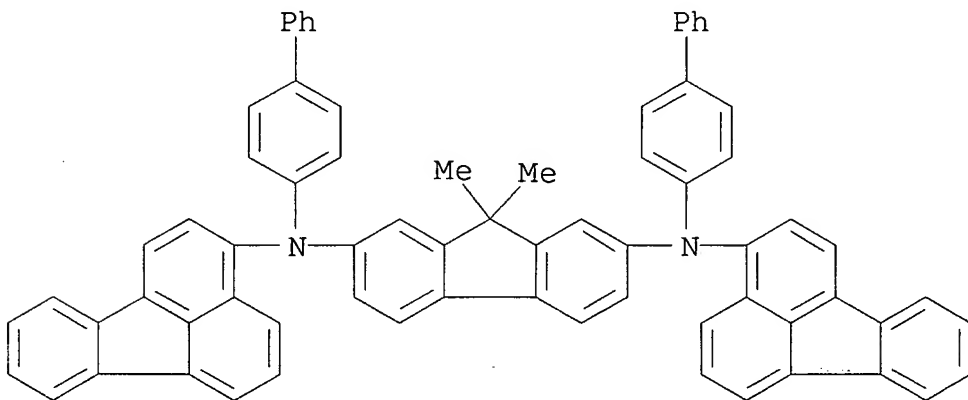
RN 799559-77-6 CAPLUS

CN 9H-Fluorene-2,7-diamine, N,N'-bis(3-fluoranthenyl)-9,9-dimethyl-N,N'-di-1-naphthalenyl- (9CI) (CA INDEX NAME)



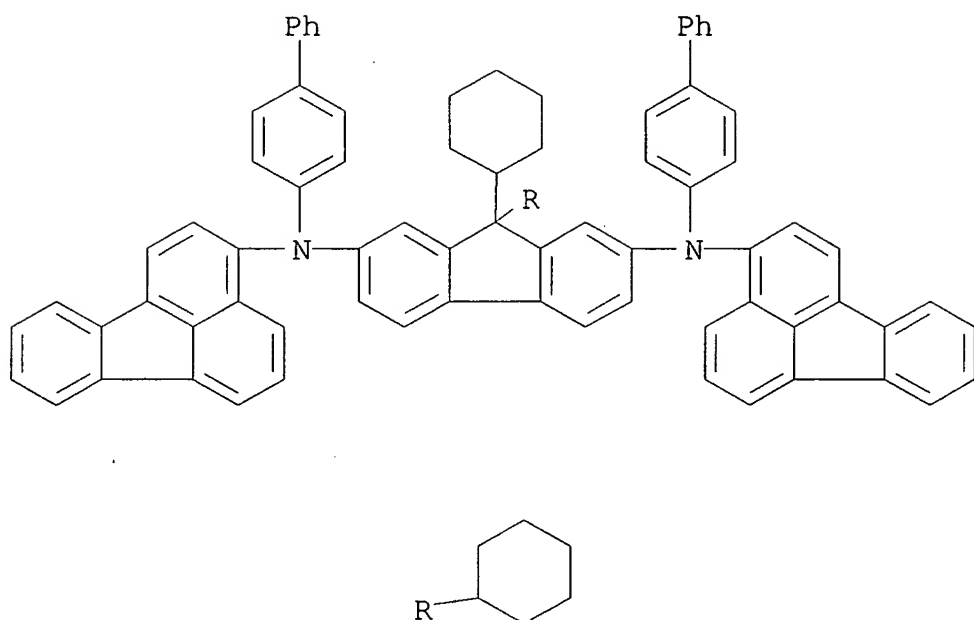
RN 799559-81-2 CAPLUS

CN 9H-Fluorene-2,7-diamine, N,N'-bis[1,1'-biphenyl]-4-yl-N,N'-bis(3-fluoranthenyl)-9,9-dimethyl- (9CI) (CA INDEX NAME)



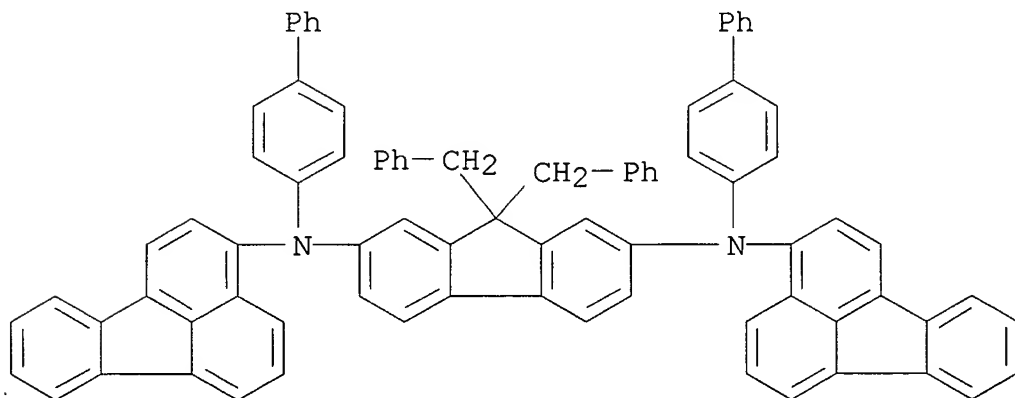
RN 799559-84-5 CAPLUS

CN 9H-Fluorene-2,7-diamine, N,N'-bis[1,1'-biphenyl]-4-yl-9,9-dicyclohexyl-N,N'-bis(3-fluoranthenyl)- (9CI) (CA INDEX NAME)



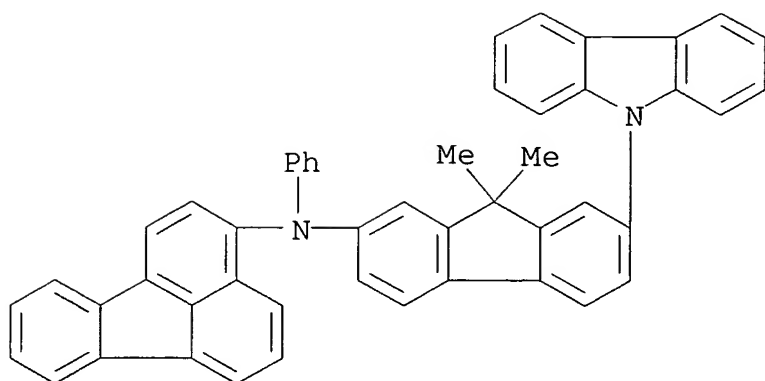
RN 799559-87-8 CAPLUS

CN 9H-Fluorene-2,7-diamine, N,N'-bis[1,1'-biphenyl]-4-yl-N,N'-bis(3-fluoranthenyl)-9,9-bis(phenylmethyl)- (9CI) (CA INDEX NAME)



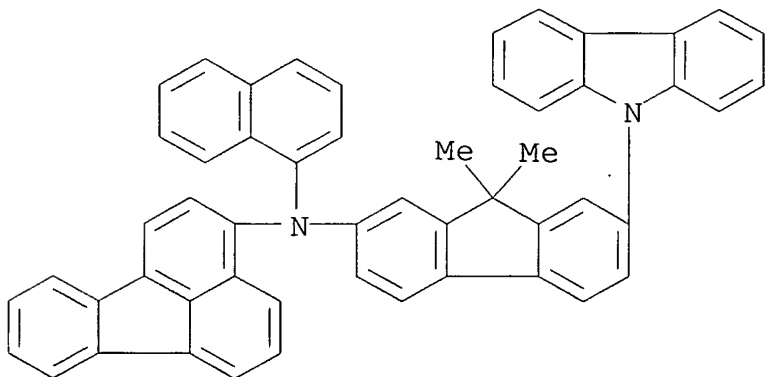
RN 799559-91-4 CAPLUS

CN 3-Fluoranthenamine, N-[7-(9H-carbazol-9-yl)-9,9-dimethyl-9H-fluoren-2-yl]-N-phenyl- (9CI) (CA INDEX NAME)



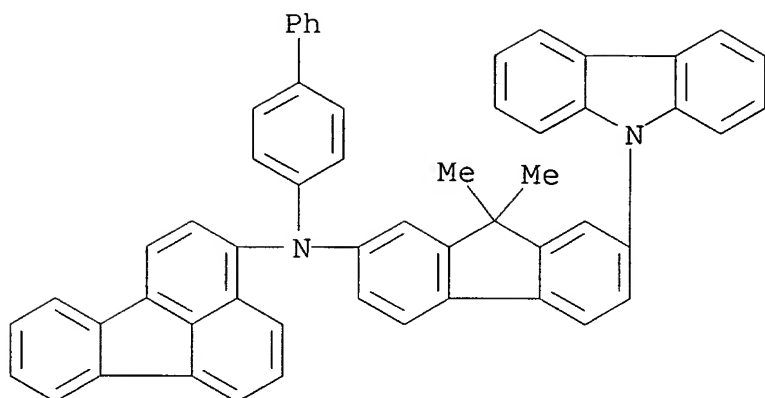
RN 799559-95-8 CAPLUS

CN 3-Fluorantheneamine, N-[7-(9H-carbazol-9-yl)-9,9-dimethyl-9H-fluoren-2-yl]-N-1-naphthalenyl- (9CI) (CA INDEX NAME)



RN 799559-98-1 CAPLUS

CN 3-Fluorantheneamine, N-[1,1'-biphenyl]-4-yl-N-[7-(9H-carbazol-9-yl)-9,9-dimethyl-9H-fluoren-2-yl]- (9CI) (CA INDEX NAME)



- IC ICM C07C211-57  
ICS C07D209-86; C09K011-06; H05B033-14; H05B033-22
- CC 73-11 (**Optical**, Electron, and Mass Spectroscopy and Other Related Properties)  
Section cross-reference(s): 25
- ST heat resistant durable fluoranthenyl fluorenylamine electroluminescent; fluoranthenylamino fluorene hole injection transport **luminescent layer**; org EL  
fluoranthenyl fluorenyl amine durability
- IT **605630-42-0P** 799560-02-4P 799560-13-7P  
**799560-22-8P**  
(in preparation of amines; organic electroluminescent devices containing  
fluoranthenyl fluorenylamines with good heat resistance and durability)
- IT 62-53-3, Aniline, reactions 86-74-8, Carbazole 92-67-1, 4-Phenylaniline 122-39-4, N,N-Diphenylamine, reactions 134-32-7, 1-Naphthylamine 13438-50-1, 3-Bromofluoranthene **144981-86-2**, 2,7-Diiodo-9,9-dimethyl-9H-fluorene **605630-40-8** **729569-84-0** **768398-91-0**  
(in preparation of amines; organic electroluminescent devices containing  
fluoranthenyl fluorenylamines with good heat resistance and durability)
- IT **799559-66-3P** **799559-69-6P** **799559-73-2P**  
**799559-77-6P** **799559-81-2P** **799559-84-5P**  
**799559-87-8P** **799559-91-4P** **799559-95-8P**  
**799559-98-1P**  
(organic electroluminescent devices containing fluoranthenyl fluorenylamines with good heat resistance and durability)

DOCUMENT NUMBER: 141:386152  
 TITLE: Aromatic amine derivative and organic electroluminescent device employing the same  
 INVENTOR(S): Funahashi, Masakazu  
 PATENT ASSIGNEE(S): Idemitsu Kosan Co., Ltd., Japan  
 SOURCE: PCT Int. Appl., 43 pp.  
 CODEN: PIXXD2  
 DOCUMENT TYPE: Patent  
 LANGUAGE: Japanese  
 FAMILY ACC. NUM. COUNT: 1  
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2004092111	A1	20041028	WO 2004-JP140	2004 0113

W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW  
 RW: BW, GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG

PRIORITY APPLN. INFO.: JP 2003-106231 A  
 2003 0410

OTHER SOURCE(S): MARPAT 141:386152

AB Disclosed is an aromatic amine derivative having a specific structure comprising a substituted anthracene structure and connected thereto an amine structure substituted by a substituted benzene ring; and an organic electroluminescent device comprising a cathode, an anode, and  $\geq 1$  thin organic film **layers** sandwiched therebetween which comprise at least a **luminescent layer**, wherein at least 1 of the thin organic film **layers** consists only of the aromatic amine derivative or contains the derivative as a component of a mixture. The device is high in luminance and **luminescence** efficiency and has a long life. The aromatic amine derivative is a novel 1 which realizes the device.

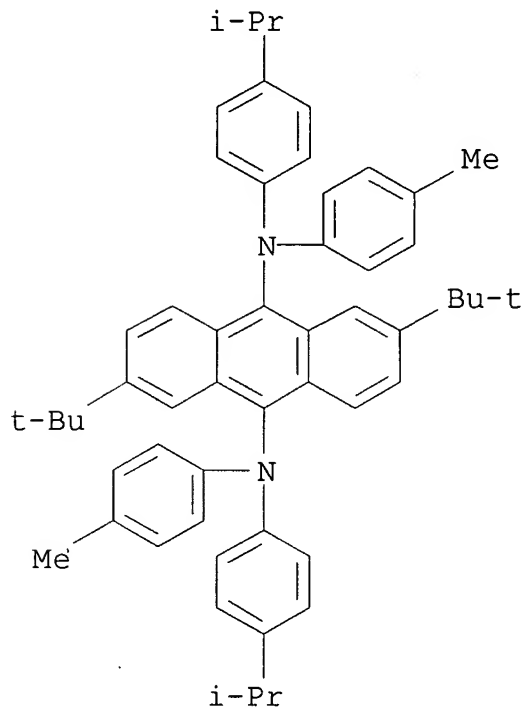
IT 668020-34-6P 782504-30-7P 782504-31-8P

782504-32-9P 782504-34-1P 782504-36-3P

(aromatic amine derivative for organic electroluminescent device)

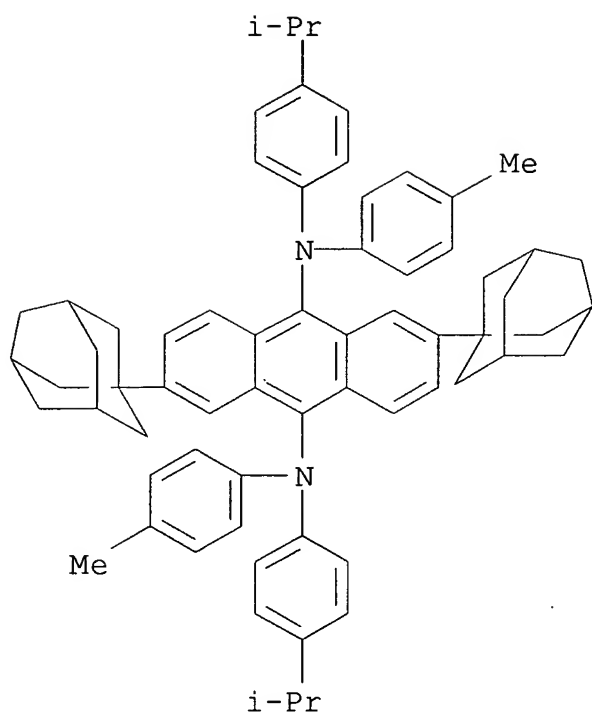
RN 668020-34-6 CAPLUS

CN 9,10-Anthracenediamine, 2,6-bis(1,1-dimethylethyl)-N,N'-bis[4-(1-methylethyl)phenyl]-N,N'-bis(4-methylphenyl)- (9CI) (CA INDEX NAME)



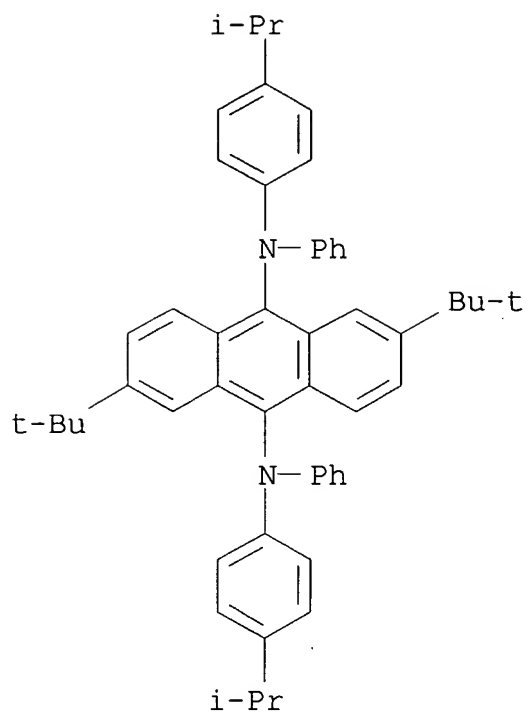
RN 782504-30-7 CAPLUS

CN 9,10-Anthracenediamine, N,N'-bis[4-(1-methylethyl)phenyl]-N,N'-bis(4-methylphenyl)-2,6-bis(tricyclo[3.3.1.1<sup>3,7</sup>]dec-1-yl)- (9CI) (CA INDEX NAME)



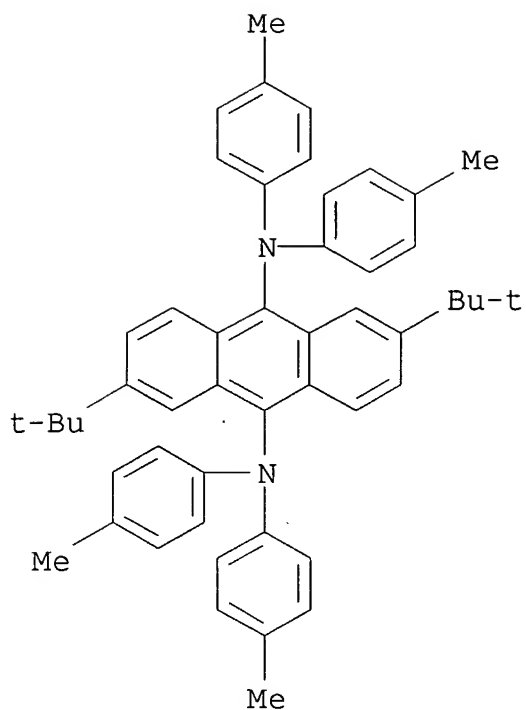
RN 782504-31-8 CAPLUS

CN 9,10-Anthracenediamine, 2,6-bis(1,1-dimethylethyl)-N,N'-bis[4-(1-methylethyl)phenyl]-N,N'-diphenyl- (9CI) (CA INDEX NAME)

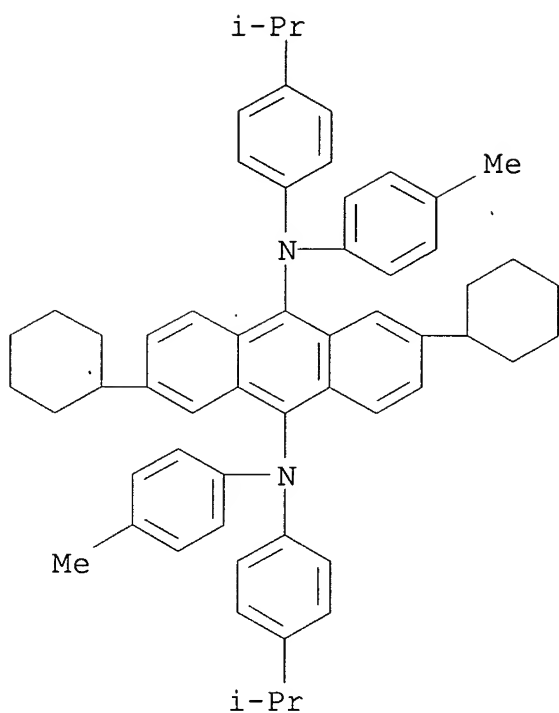


RN 782504-32-9 CAPLUS  
CN 9,10-Anthracenediamine, 2,6-bis(1,1-dimethylethyl)-N,N,N',N'-  
tetraakis(4-methylphenyl)- (9CI) (CA INDEX NAME)



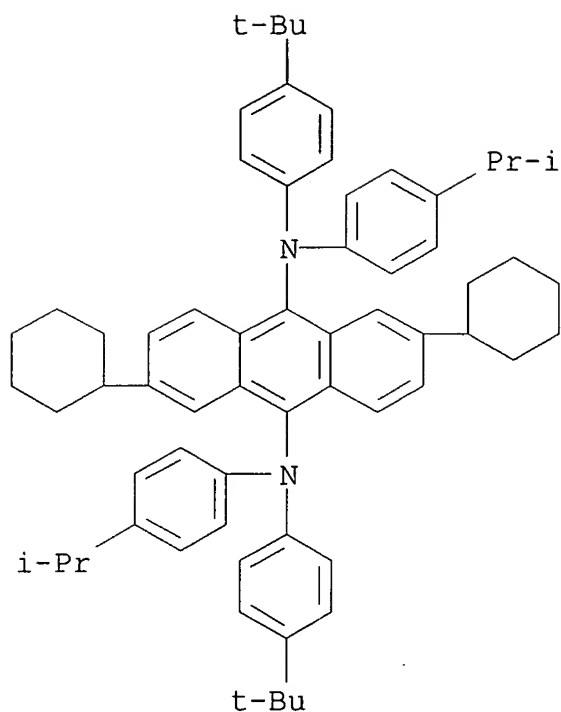


RN 782504-34-1 CAPLUS  
CN 9,10-Anthracenediamine, 2,6-dicyclohexyl-N,N'-bis[4-(1-methylethyl)phenyl]-N,N'-bis(4-methylphenyl)- (9CI) (CA INDEX NAME)

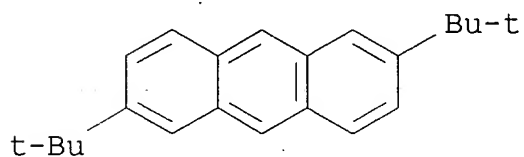


RN 782504-36-3 CAPLUS

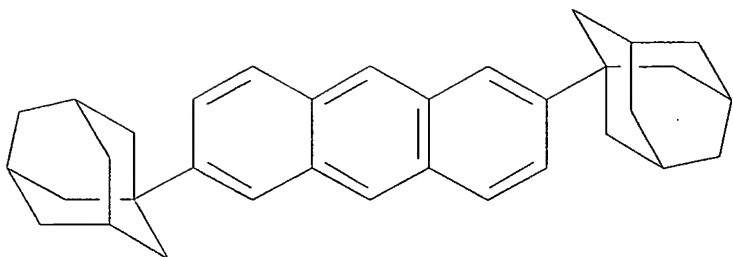
CN 9,10-Anthracenediamine, 2,6-dicyclohexyl-N,N'-bis[4-(1,1-dimethylethyl)phenyl]-N,N'-bis[4-(1-methylethyl)phenyl]- (9CI)  
(CA INDEX NAME)



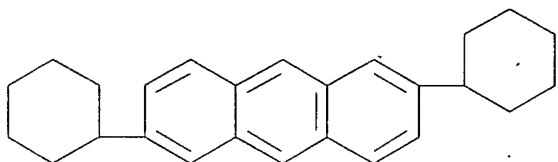
IT 62375-58-0, 2,6-Di(tert-butyl)anthracene  
 77074-17-0 782504-33-0  
 (aromatic amine derivative for organic electroluminescent device)  
 RN 62375-58-0 CAPLUS  
 CN Anthracene, 2,6-bis(1,1-dimethylethyl)- (9CI) (CA INDEX NAME)



RN 77074-17-0 CAPLUS  
 CN Tricyclo[3.3.1.1<sup>3,7</sup>]decane, 1,1'-(2,6-anthracenediyl)bis- (9CI)  
 (CA INDEX NAME)



RN 782504-33-0 CAPLUS  
CN Anthracene, 2,6-dicyclohexyl- (9CI) (CA INDEX NAME)



IC ICM C07C211-61  
ICS C09K011-06; H05B033-14; H05B033-22  
CC 73-11 (Optical, Electron, and Mass Spectroscopy and  
Other Related Properties)  
Section cross-reference(s): 25, 74  
IT Luminescent substances  
(electroluminescent; aromatic amine derivative for organic  
electroluminescent device)  
IT 668020-34-6P 782504-30-7P 782504-31-8P  
782504-32-9P 782504-34-1P 782504-36-3P  
(aromatic amine derivative for organic electroluminescent device)  
IT 620-93-9 5650-10-2, 4-Isopropylidiphenylamine 62375-58-0  
, 2,6-Di(tert-butyl)anthracene 77074-17-0 494834-22-9  
782504-33-0 782504-35-2  
(aromatic amine derivative for organic electroluminescent device)  
REFERENCE COUNT: 6 THERE ARE 6 CITED REFERENCES AVAILABLE  
FOR THIS RECORD. ALL CITATIONS AVAILABLE  
IN THE RE FORMAT

L40 ANSWER 8 OF 65 CAPLUS COPYRIGHT 2005 ACS on STN  
ACCESSION NUMBER: 2004:756795 CAPLUS  
DOCUMENT NUMBER: 141:285537  
TITLE: Organic electroluminescent device employing a  
derivative of 9,10-diaminoanthracene as a  
green luminescent dopant  
INVENTOR(S): Seo, Jeong Dae; Kim, Hee Jung; Lee, Kyung

Hoon; Oh, Hyoung Yun; Kim, Myung Seop; Park,  
 Chun Gun  
 PATENT ASSIGNEE(S): LG Electronics Inc., S. Korea  
 SOURCE: PCT Int. Appl., 35 pp.  
 CODEN: PIXXD2  
 DOCUMENT TYPE: Patent  
 LANGUAGE: English  
 FAMILY ACC. NUM. COUNT: 1  
 PATENT INFORMATION:

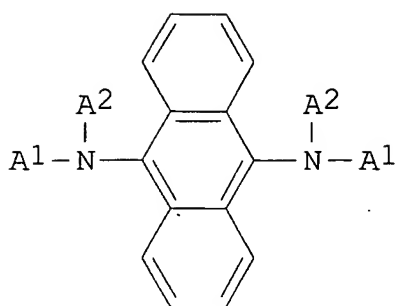
PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2004078872	A2	20040916	WO 2004-KR472	2004 0305

WO 2004078872 A3 20041216  
 W: AE, AE, AG, AL, AL, AM, AM, AM, AT, AT, AU, AZ, AZ, BA,  
 BB, BG, BG, BR, BR, BW, BY, BY, BZ, BZ, CA, CH, CN, CN,  
 CO, CO, CR, CR, CU, CU, CZ, CZ, DE, DE, DK, DK, DM, DZ,  
 EC, EC, EE, EE, EG, ES, ES, FI, FI, GB, GD, GE, GE, GH,  
 GM, HR, HR, HU, HU, ID, IL, IN, IS, JP, JP, KE, KE, KG,  
 KG, KP, KP, KP, KZ, KZ, KZ, LC, LK, LR, LS, LS, LT, LU,  
 LV, MA, MD, MD, MG, MK, MN, MW, MX, MX, MZ, MZ, NA, NI,  
 NI, NO  
 RW: BW, GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW,  
 AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR,  
 HU, IE, IT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR, BF,  
 BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD,  
 TG, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE,  
 SN, TD, TG

US 2004209118	A1	20041021	US 2004-792130	2004 0304
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PRIORITY APPLN. INFO.: KR 2003-13700 A 2003  
 0305  
 KR 2003-20468 A 2003  
 0401

OTHER SOURCE(S): MARPAT 141:285537  
 GI



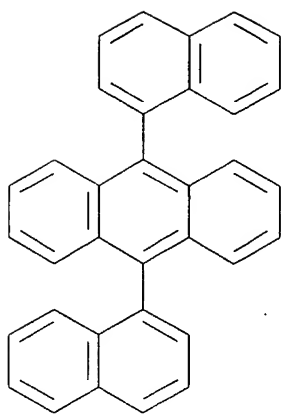
AB Organic electroluminescent devices (OLEDs) are described which comprise a substrate; a first and second electrodes formed on the substrate; and a **light-emitting layer** formed between the first electrode and the second electrode, with the **light-emitting layer** having a plurality of materials and being a green **luminescent** material using a dopant with chemical formula I where at least one of A1 and A2 is selected from a substituted or non-substituted aromatic group, a heterocyclic group, an aliphatic group and hydrogen. The materials forming the **light-emitting layer** together with the material of chemical formula (I) may have the formula B1-X-B2 where X is selected from naphthalene, fluorine, anthracene, phenanthrene, pyrene, perylene, quinoline, and isoquinoline; and at least one of B1 and B2 is selected from aryl, alkylaryl, alkoxyaryl, arylaminoaryl, alkylamino, and arylallyl.

IT 26979-27-1 43069-36-9 55009-75-1  
 331749-28-1 400606-81-7 626236-19-9  
 653599-45-2 653599-46-3 722498-56-8  
 722498-57-9 722498-58-0 722498-59-1  
 722498-62-6 722498-64-8 722498-65-9  
 722498-66-0 722498-67-1 722498-68-2  
 722498-69-3 722498-70-6 722498-71-7  
 722498-72-8 722498-73-9 722498-74-0  
 722498-75-1 756899-77-1

(**light-emitting** host; organic electroluminescent device employing derivative of 9,10-diaminoanthracene as green **luminescent** dopant)

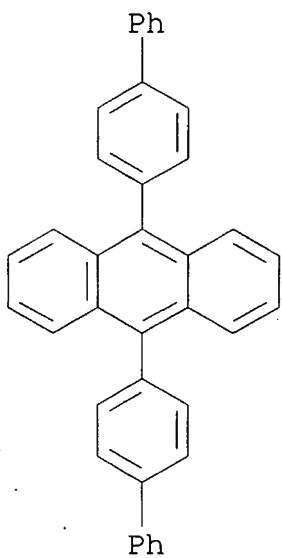
RN 26979-27-1 CAPLUS

CN Anthracene, 9,10-di-1-naphthalenyl- (9CI) (CA INDEX NAME)



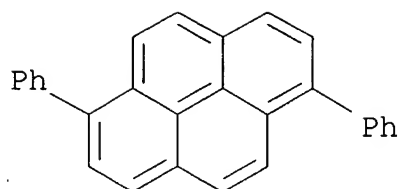
RN 43069-36-9 CAPLUS

CN Anthracene, 9,10-bis([1,1'-biphenyl]-4-yl)- (9CI) (CA INDEX NAME)



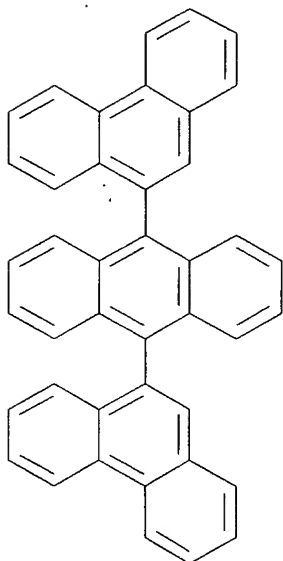
RN 55009-75-1 CAPLUS

CN Pyrene, 1,6-diphenyl- (9CI) (CA INDEX NAME)



RN 331749-28-1 CAPLUS

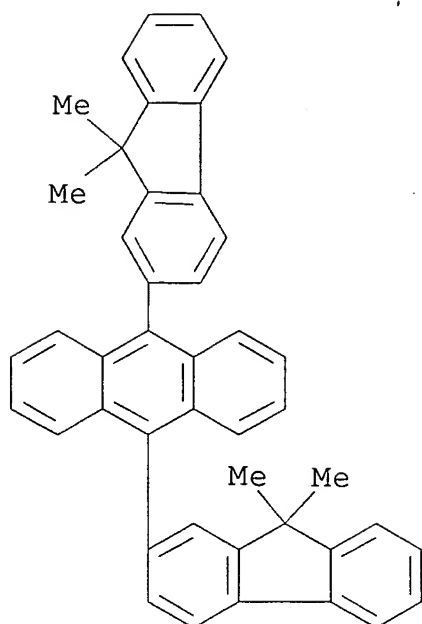
CN Anthracene, 9,10-di-9-phenanthrenyl- (9CI) (CA INDEX NAME)



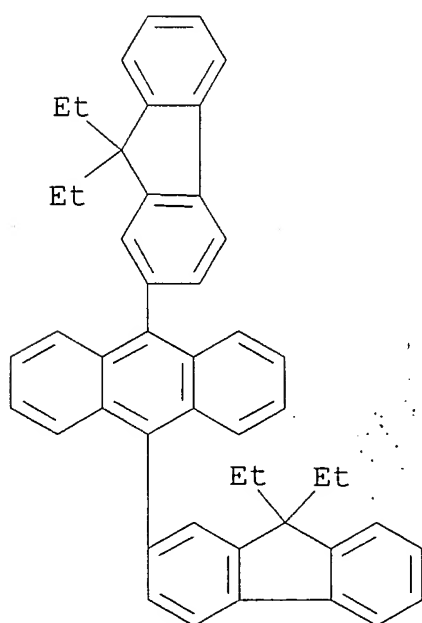
RN 400606-81-7 CAPLUS

CN Anthracene, 9,10-bis(9,9-dimethyl-9H-fluoren-2-yl)- (9CI) (CA INDEX NAME)

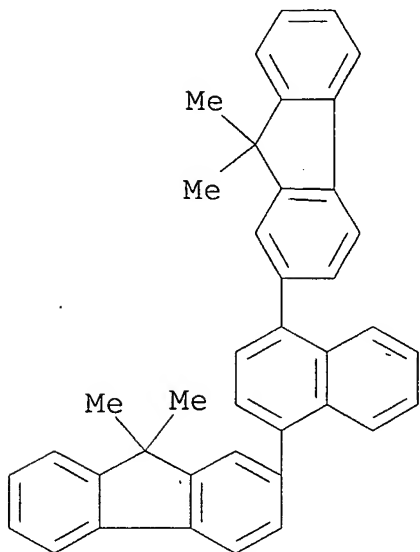




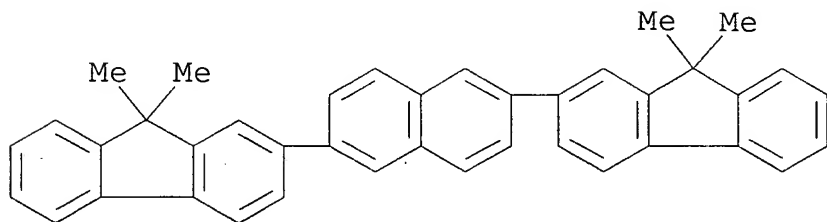
RN 626236-19-9 CAPLUS  
 CN Anthracene, 9,10-bis(9,9-diethyl-9H-fluoren-2-yl)- (9CI) (CA  
 INDEX NAME)



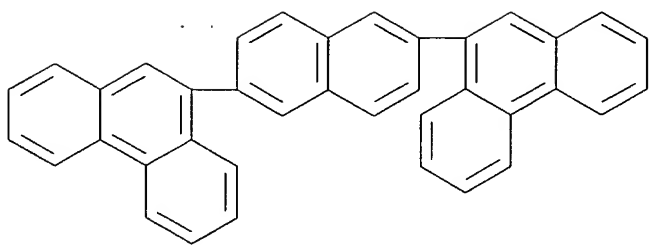
RN 653599-45-2 CAPLUS  
CN 9H-Fluorene, 2,2'-(1,4-naphthalenediyl)bis[9,9-dimethyl- (9CI)  
(CA INDEX NAME)



RN 653599-46-3 CAPLUS  
CN 9H-Fluorene, 2,2'-(2,6-naphthalenediyl)bis[9,9-dimethyl- (9CI)  
(CA INDEX NAME)

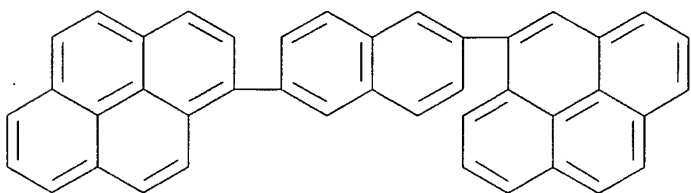


RN 722498-56-8 CAPLUS  
CN Phenanthrene, 9,9'-(2,6-naphthalenediyl)bis- (9CI) (CA INDEX  
NAME)



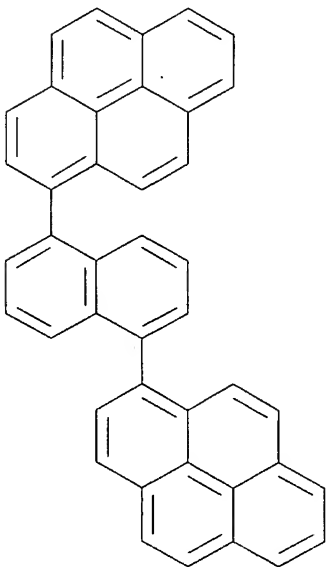
RN 722498-57-9 CAPLUS

CN Pyrene, 1-[6-(4-pyrenyl)-2-naphthalenyl]- (9CI) (CA INDEX NAME)



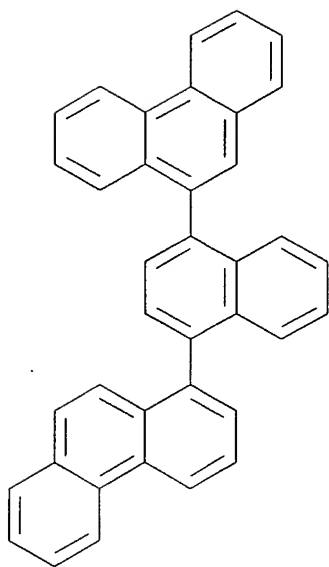
RN 722498-58-0 CAPLUS

CN Pyrene, 1,1'-(1,5-naphthalenediyl)bis- (9CI) (CA INDEX NAME)



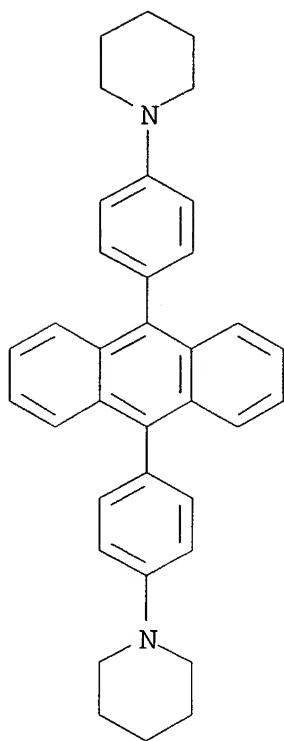
RN 722498-59-1 CAPLUS

CN Phenanthrene, 1-[4-(9-phenanthrenyl)-1-naphthalenyl]- (9CI) (CA INDEX NAME)



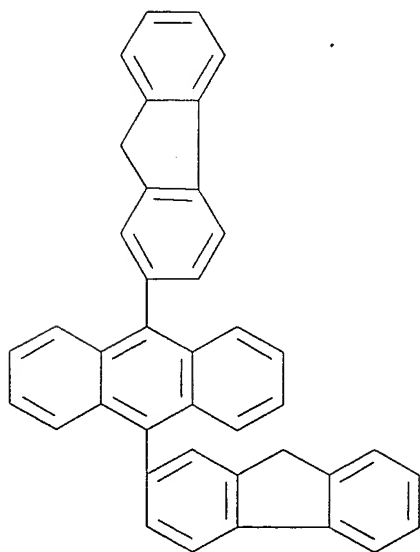
RN 722498-62-6 CAPLUS

CN Piperidine, 1,1'-(9,10-anthracenediyl)di-4,1-phenylene)bis- (9CI)  
(CA INDEX NAME)

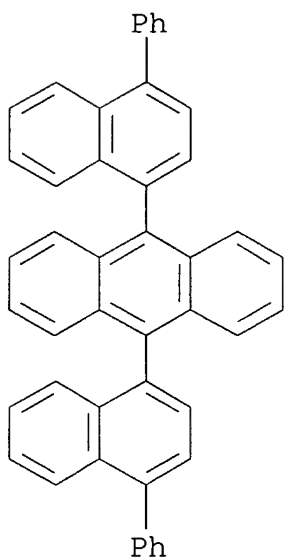


RN 722498-64-8 CAPLUS

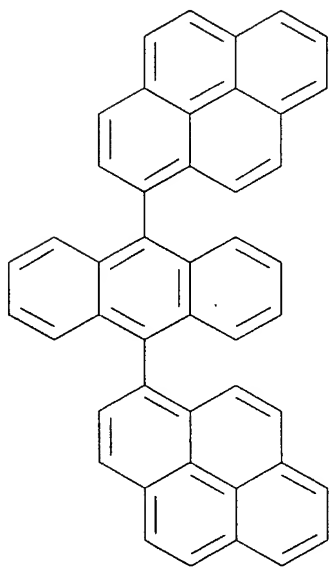
CN Anthracene, 9,10-di-9H-fluoren-2-yl- (9CI) (CA INDEX NAME)



RN 722498-65-9 CAPLUS  
CN Anthracene, 9,10-bis(4-phenyl-1-naphthalenyl)- (9CI) (CA INDEX NAME)

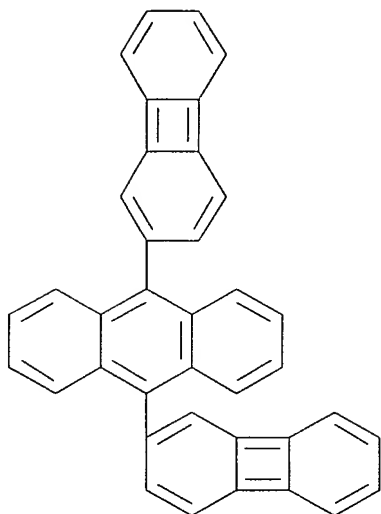


RN 722498-66-0 CAPLUS  
CN Pyrene, 1,1'-(9,10-anthracenediyl)bis- (9CI) (CA INDEX NAME)



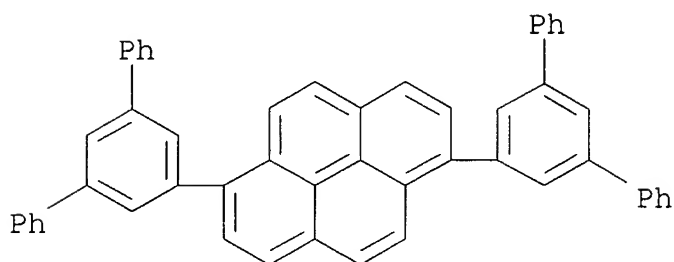
RN 722498-67-1 CAPLUS

..CN Anthracene, 9,10-bis(2-biphenylenyl)- (9CI) (CA INDEX NAME)



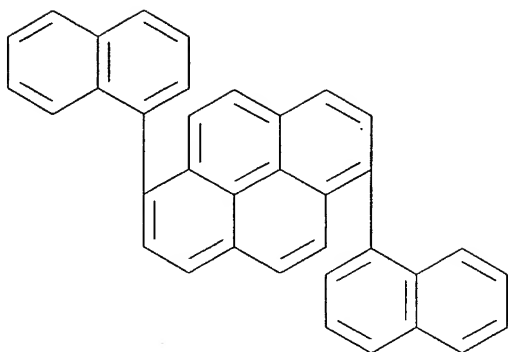
RN 722498-68-2 CAPLUS

CN Pyrene, 1,6-bis([1,1':3',1''-terphenyl]-5'-yl)- (9CI) (CA INDEX NAME)



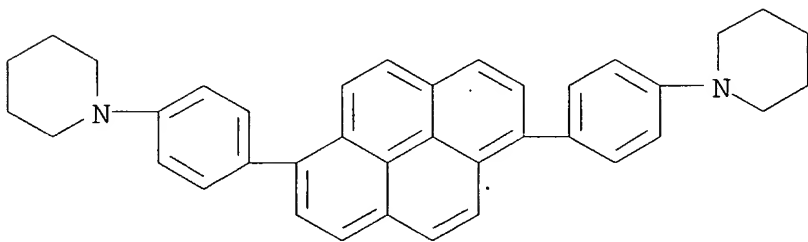
RN 722498-69-3 CAPLUS

CN Pyrene, 1,6-di-1-naphthalenyl- (9CI) (CA INDEX NAME)



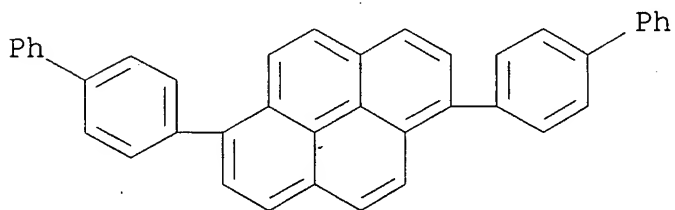
RN 722498-70-6 CAPLUS

CN Piperidine, 1,1'-(1,6-pyrenediyl-di-4,1-phenylene)bis- (9CI) (CA INDEX NAME)



RN 722498-71-7 CAPLUS

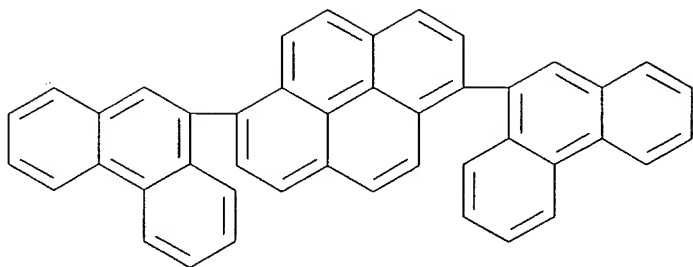
CN Pyrene, 1,6-bis[1,1'-biphenyl]-4-yl- (9CI) (CA INDEX NAME)



RN 722498-72-8 CAPLUS

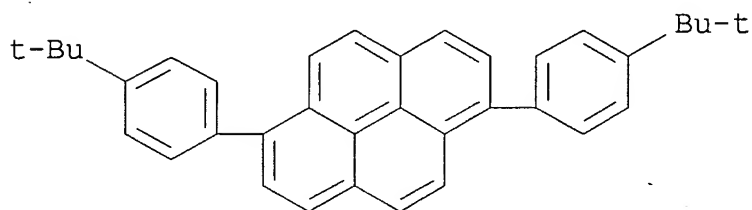
CN Pyrene, 1,6-di-9-phenanthrenyl- (9CI) (CA INDEX NAME)





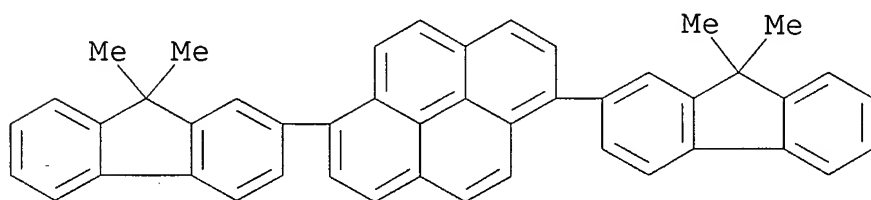
RN 722498-73-9 CAPLUS

CN Pyrene, 1,6-bis[4-(1,1-dimethylethyl)phenyl]- (9CI) (CA INDEX NAME)



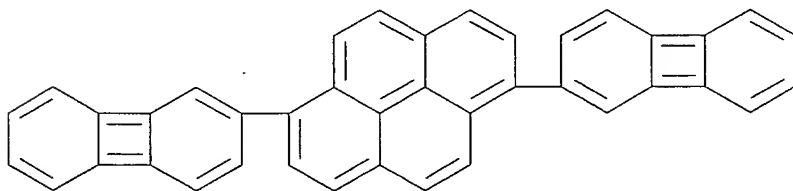
RN 722498-74-0 CAPLUS

CN Pyrene, 1,6-bis(9,9-dimethyl-9H-fluoren-2-yl)- (9CI) (CA INDEX NAME)



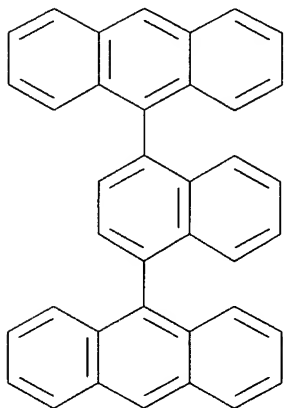
RN 722498-75-1 CAPLUS

CN Pyrene, 1,6-bis(2-biphenylenyl)- (9CI) (CA INDEX NAME)



RN 756899-77-1 CAPLUS

CN Anthracene, 9,9'-(1,4-naphthalenediyl)bis- (9CI) (CA INDEX NAME)

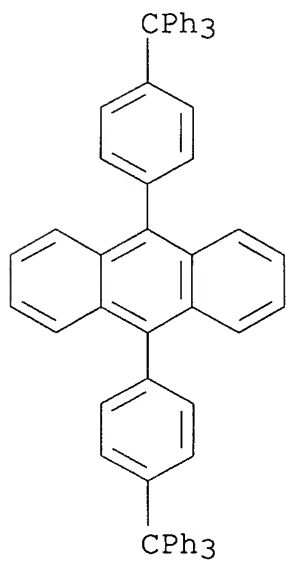


IT 722498-63-7

(light-emitting host; organic  
electroluminescent device employing derivative of  
9,10-diaminoanthracene as green luminescent dopant)

RN 722498-63-7 CAPLUS

CN Anthracene, 9,10-bis[4-(triphenylmethyl)phenyl]- (9CI) (CA INDEX NAME)



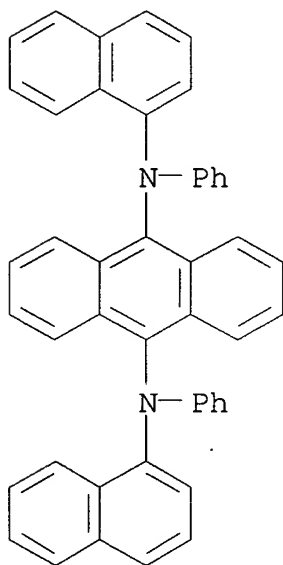
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756899-70-4 756899-71-5 756899-72-6  
756899-73-7 756899-74-8 756899-75-9  
756899-76-0

(organic electroluminescent device employing derivative of  
9,10-diaminoanthracene as green luminescent dopant)

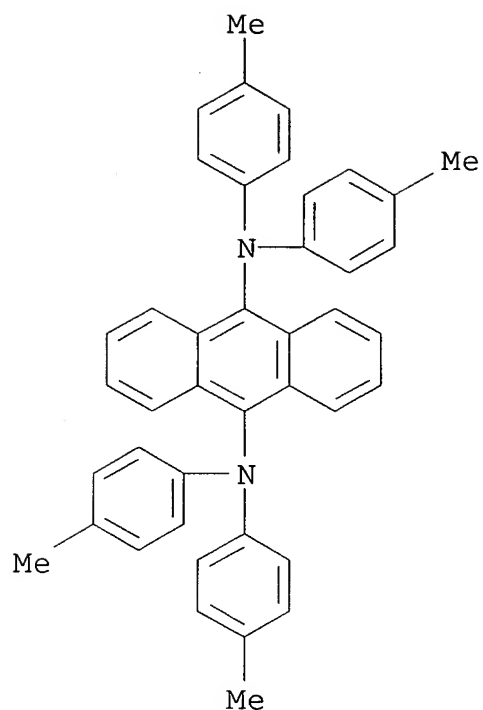
RN 177799-14-3 CAPLUS

CN 9,10-Anthracenediamine, N,N'-di-1-naphthalenyl-N,N'-diphenyl-  
(9CI) (CA INDEX NAME)



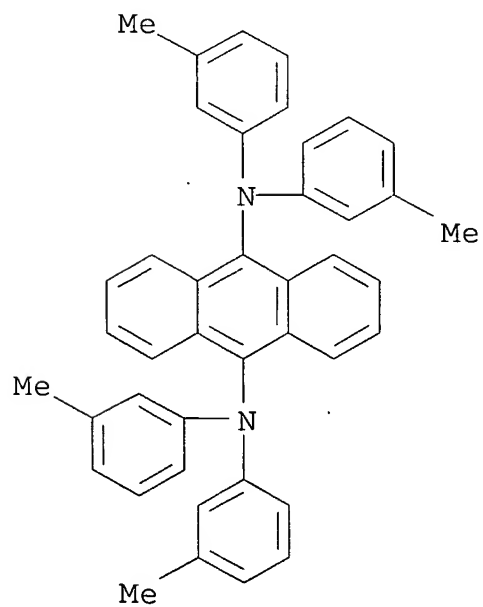
RN 177799-16-5 CAPLUS

CN 9,10-Anthracenediamine, N,N,N',N'-tetrakis(4-methylphenyl)- (9CI)  
(CA INDEX NAME)

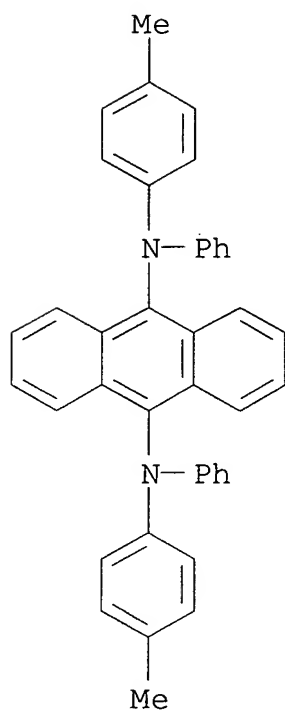


RN 189263-82-9 CAPLUS

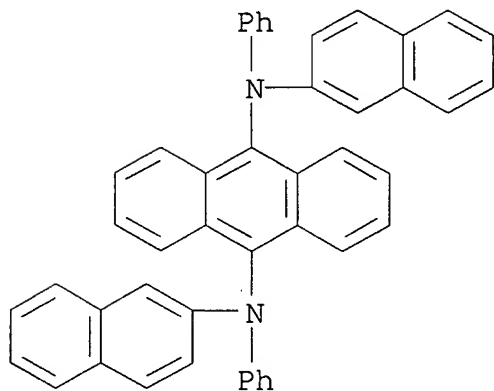
CN 9,10-Anthracenediamine, N,N,N',N'-tetrakis(3-methylphenyl)- (9CI)  
(CA INDEX NAME)



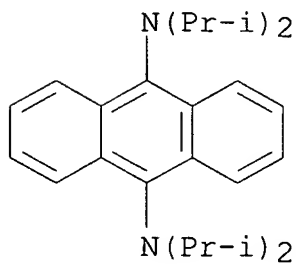
RN 190974-21-1 CAPLUS

CN 9,10-Anthracenediamine, N,N'-bis(4-methylphenyl)-N,N'-diphenyl-  
(9CI) (CA INDEX NAME)

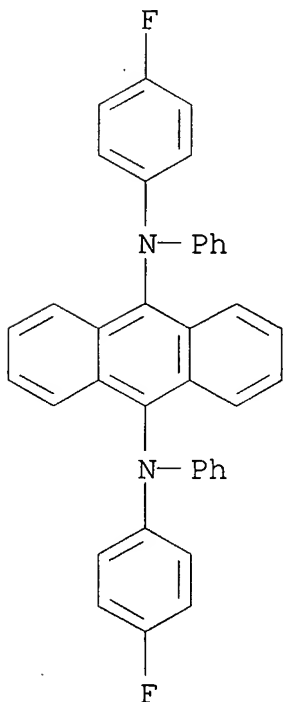
RN 473717-08-7 CAPLUS

CN 9,10-Anthracenediamine, N,N'-di-2-naphthalenyl-N,N'-diphenyl-  
(9CI) (CA INDEX NAME)

RN 756899-41-9 CAPLUS

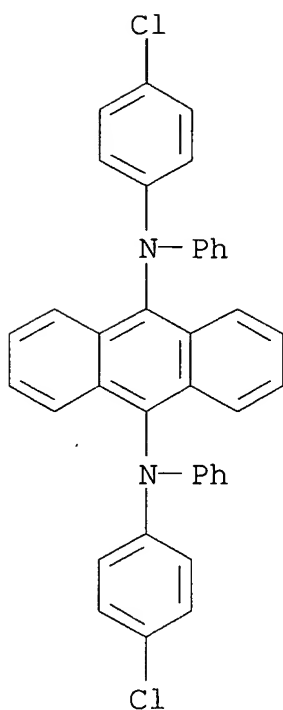
CN 9,10-Anthracenediamine, N,N,N',N'-tetrakis(1-methylethyl)- (9CI)  
(CA INDEX NAME)

RN 756899-42-0 CAPLUS

CN 9,10-Anthracenediamine, N,N'-bis(4-fluorophenyl)-N,N'-diphenyl-  
(9CI) (CA INDEX NAME)

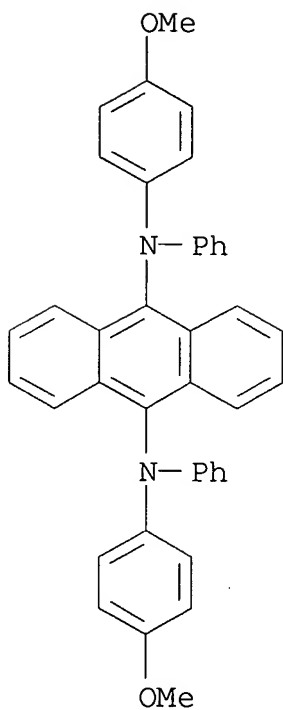
RN 756899-43-1 CAPLUS

CN 9,10-Anthracenediamine, N,N'-bis(4-chlorophenyl)-N,N'-diphenyl-  
(9CI) (CA INDEX NAME)



RN 756899-44-2 CAPLUS

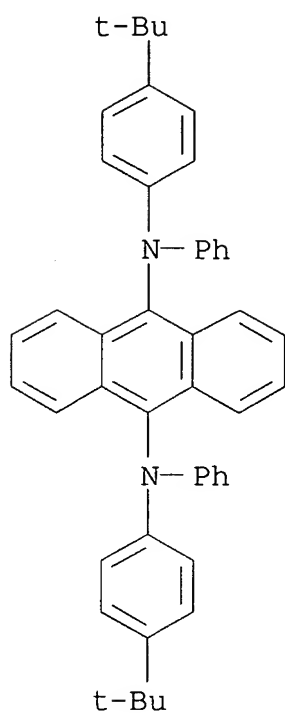
CN 9,10-Anthracenediamine, N,N'-bis(4-methoxyphenyl)-N,N'-diphenyl-  
(9CI) (CA INDEX NAME)



RN 756899-45-3 CAPLUS

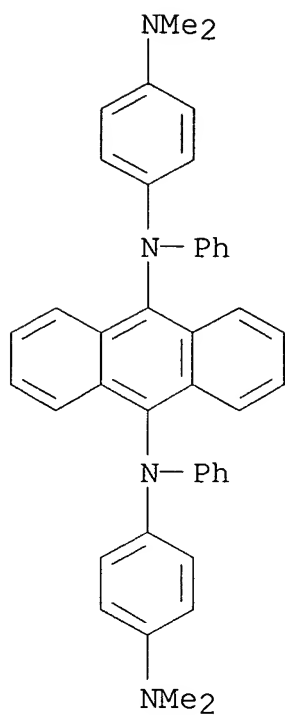
CN 9,10-Anthracenediamine, N,N'-bis[4-(1,1-dimethylethyl)phenyl]-N,N'-  
diphenyl- (9CI) (CA INDEX NAME)





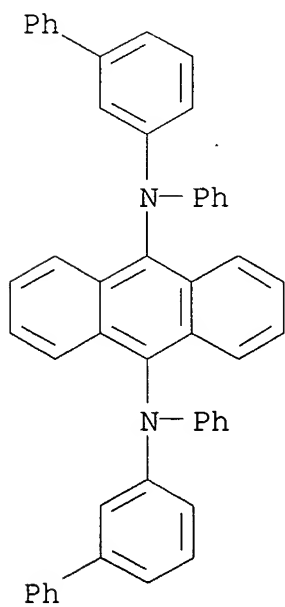
RN 756899-46-4 CAPLUS

CN 9,10-Anthracenediamine, N,N'-bis[4-(dimethylamino)phenyl]-N,N'-  
diphenyl- (9CI) (CA INDEX NAME)

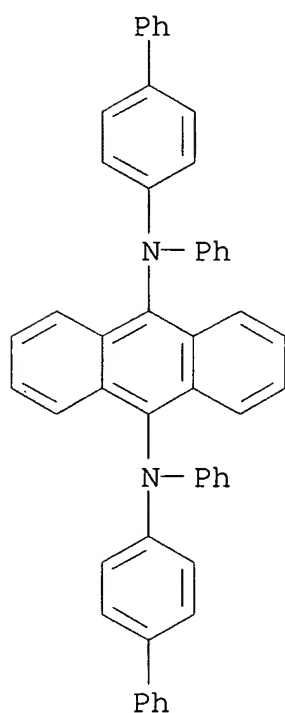


RN 756899-47-5 CAPLUS

CN 9,10-Anthracenediamine, N,N'-bis[1,1'-biphenyl]-3-yl-N,N'-diphenyl-  
(9CI) (CA INDEX NAME)



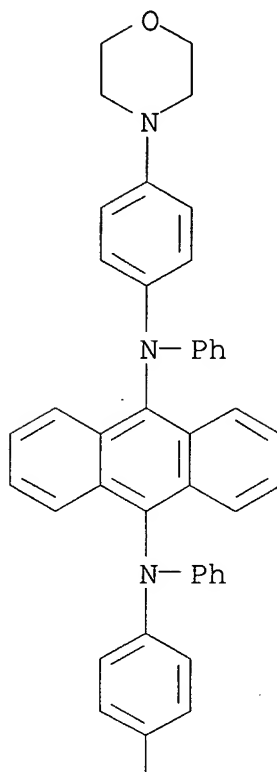
RN 756899-48-6 CAPLUS

CN 9,10-Anthracenediamine, N,N'-bis[1,1'-biphenyl]-4-yl-N,N'-diphenyl-  
(9CI) (CA INDEX NAME)

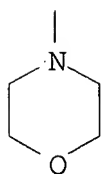
RN 756899-49-7 CAPLUS

CN 9,10-Anthracenediamine, N,N'-bis[4-(4-morpholinyl)phenyl]-N,N'-  
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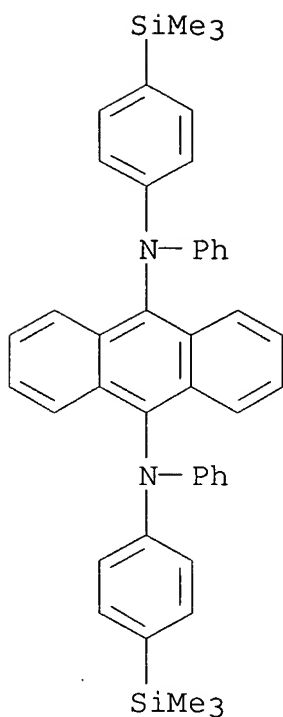
PAGE 1-A



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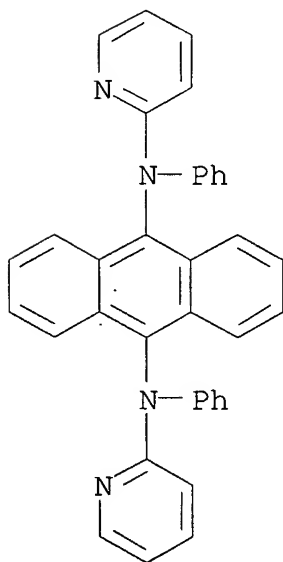


RN 756899-50-0 CAPLUS  
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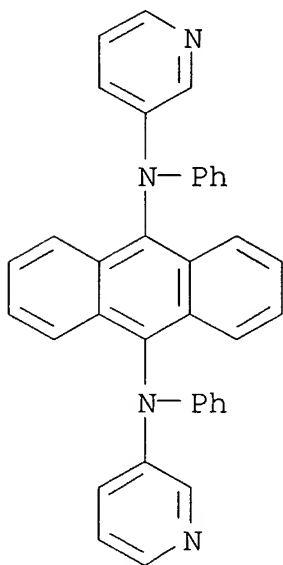


RN 756899-51-1 CAPLUS

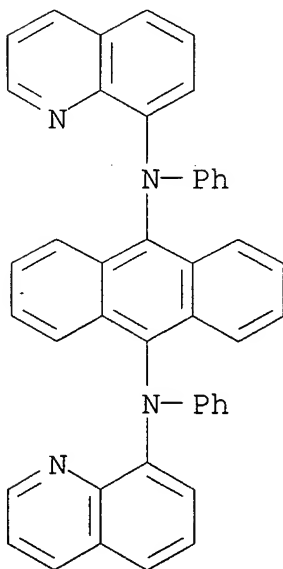
CN 9,10-Anthracenediamine, N,N'-diphenyl-N,N'-di-2-pyridinyl- (9CI)  
(CA INDEX NAME)



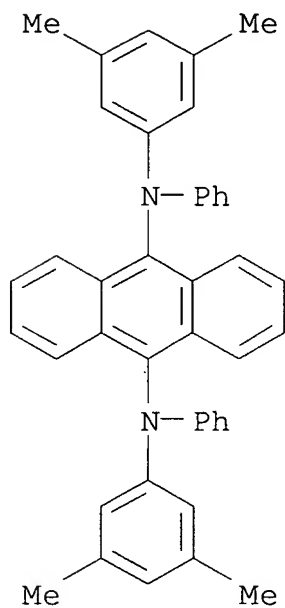
RN 756899-52-2 CAPLUS

CN 9,10-Anthracenediamine, N,N'-diphenyl-N,N'-di-3-pyridinyl- (9CI)  
(CA INDEX NAME)

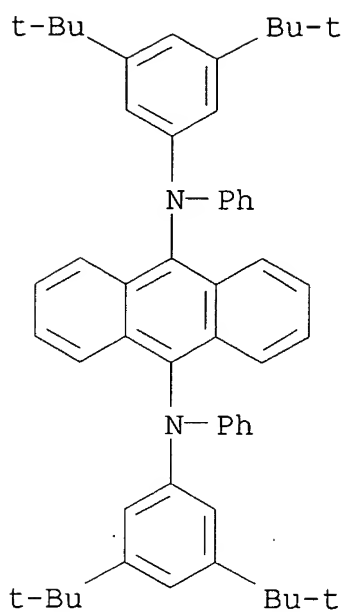
RN 756899-53-3 CAPLUS

CN 9,10-Anthracenediamine, N,N'-diphenyl-N,N'-di-8-quinolinyl- (9CI)  
(CA INDEX NAME)

RN 756899-54-4 CAPLUS  
CN 9,10-Anthracenediamine, N,N'-bis(3,5-dimethylphenyl)-N,N'-diphenyl-  
(9CI) (CA INDEX NAME)

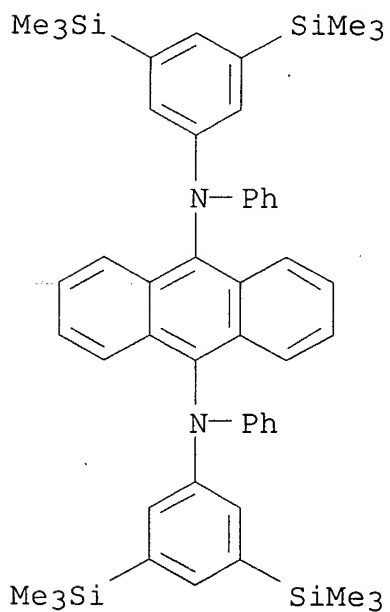


RN 756899-55-5 CAPLUS  
CN 9,10-Anthracenediamine, N,N'-bis[3,5-bis(1,1-dimethylethyl)phenyl]-  
N,N'-diphenyl- (9CI) (CA INDEX NAME)



RN 756899-56-6 CAPLUS

CN 9,10-Anthracenediamine, N,N'-bis[3,5-bis(trimethylsilyl)phenyl]-  
N,N'-diphenyl- (9CI) (CA INDEX NAME)

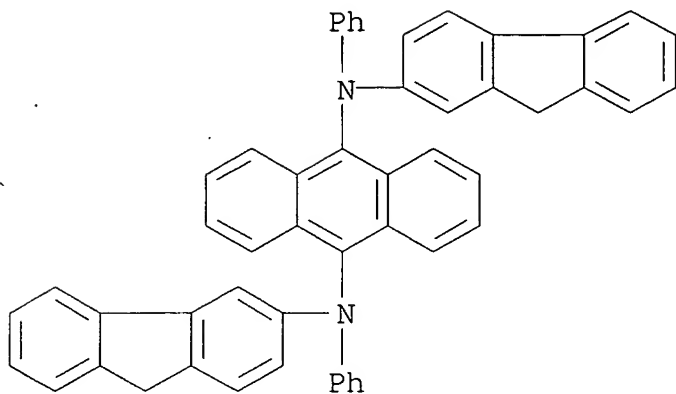


RN 756899-57-7 CAPLUS

CN 9,10-Anthracenediamine, N-9H-fluoren-2-yl-N'-9H-fluoren-3-yl-N,N'-

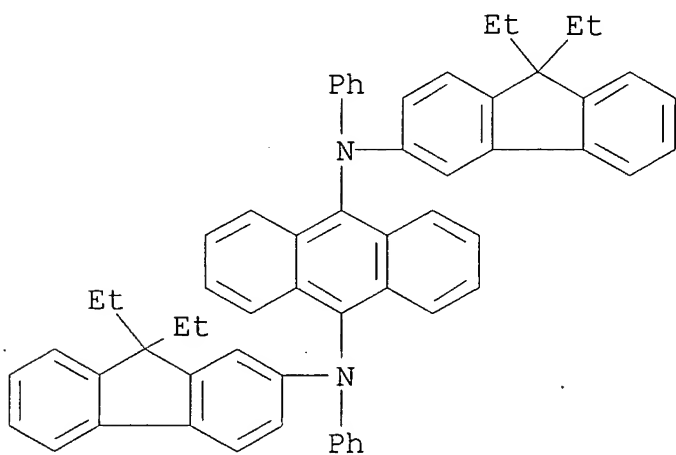


diphenyl- (9CI) (CA INDEX NAME)



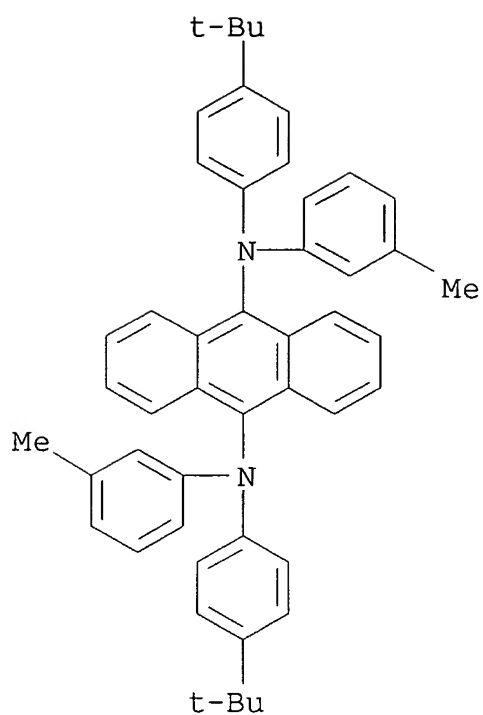
RN 756899-58-8 CAPLUS

CN 9,10-Anthracenediamine, N-(9,9-diethyl-9H-fluoren-2-yl)-N'-(9,9-diethyl-9H-fluoren-3-yl)-N,N'-diphenyl- (9CI) (CA INDEX NAME)



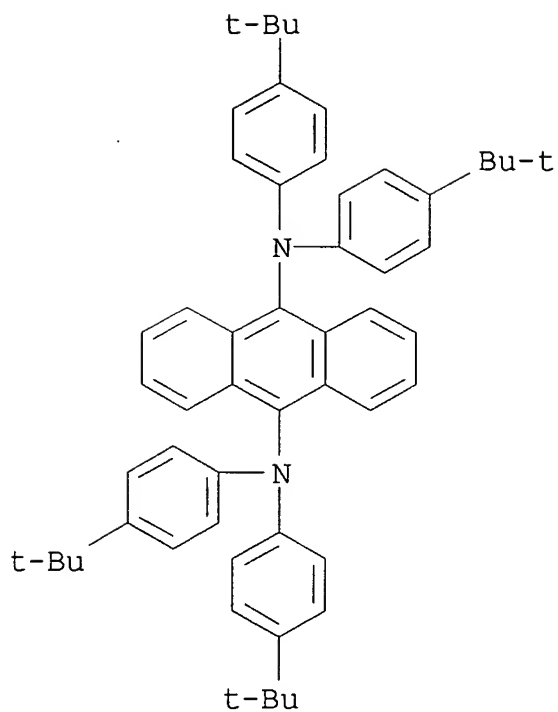
RN 756899-59-9 CAPLUS

CN 9,10-Anthracenediamine, N,N'-bis[4-(1,1-dimethylethyl)phenyl]-N,N'-bis(3-methylphenyl)- (9CI) (CA INDEX NAME)



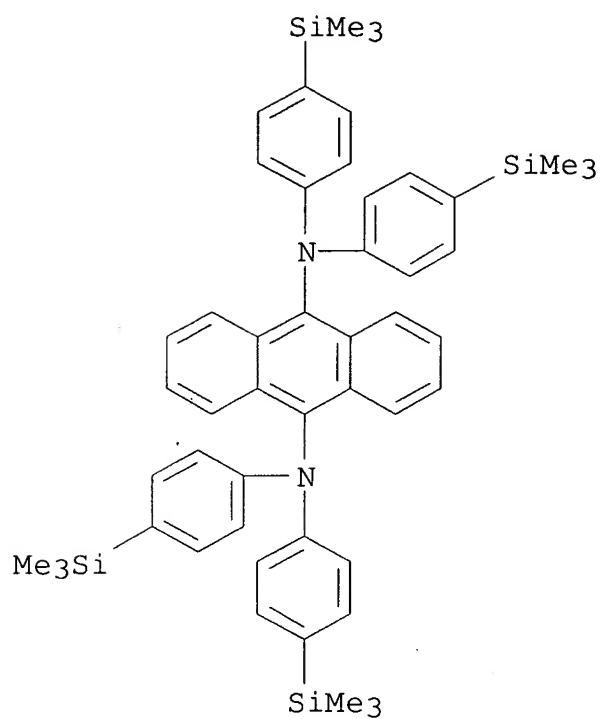
RN 756899-60-2 CAPLUS

CN 9,10-Anthracenediamine, N,N,N',N'-tetrakis[4-(1,1-dimethylethyl)phenyl]- (9CI) (CA INDEX NAME)

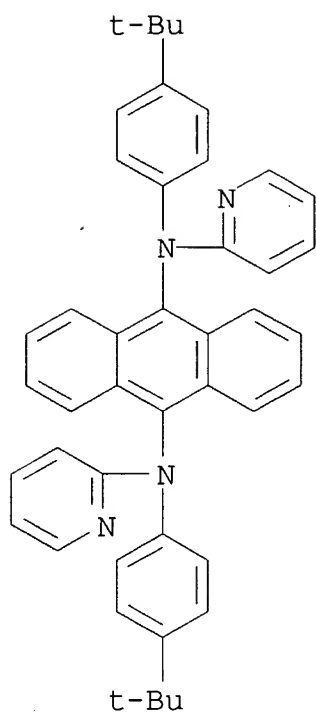


RN 756899-61-3 .CAPLUS

CN 9,10-Anthracenediamine, N,N,N',N'-tetrakis[4-(trimethylsilyl)phenyl]- (9CI) (CA INDEX NAME)

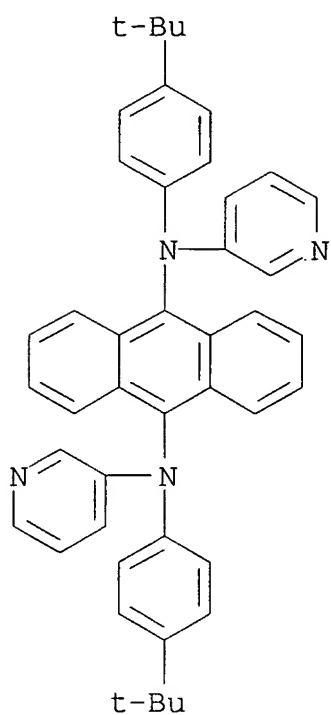


RN 756899-62-4 CAPLUS  
CN 9,10-Anthracenediamine, N,N'-bis[4-(1,1-dimethylethyl)phenyl]-N,N'-  
di-2-pyridinyl- (9CI) (CA INDEX NAME)



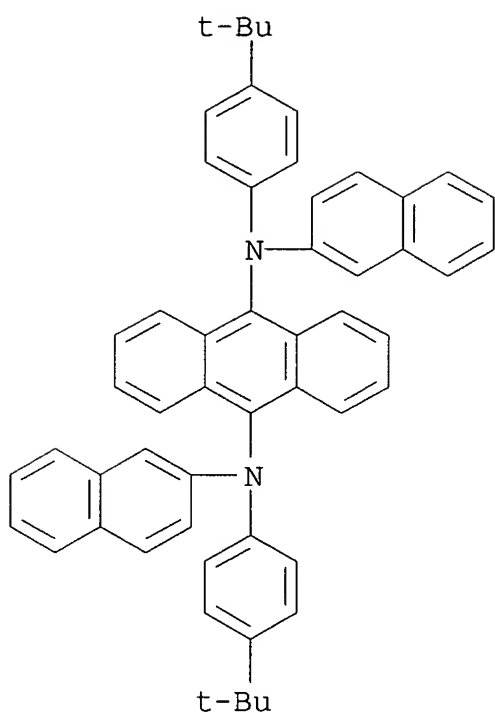
RN 756899-63-5 CAPLUS

CN 9,10-Anthracenediamine, N,N'-bis[4-(1,1-dimethylethyl)phenyl]-N,N'-di-3-pyridinyl- (9CI) (CA INDEX NAME)



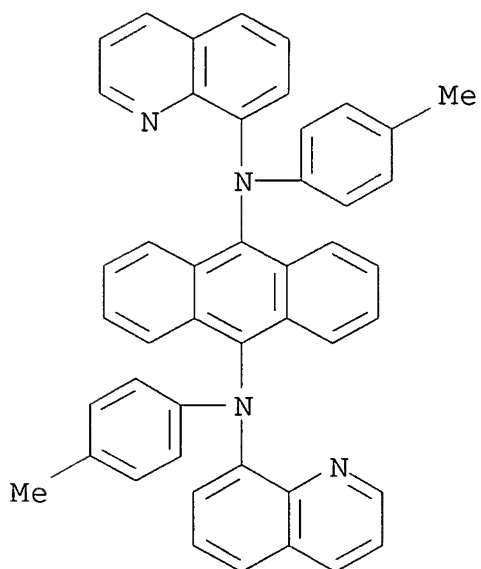
RN 756899-64-6 CAPLUS

CN 9,10-Anthracenediamine, N,N'-bis[4-(1,1-dimethylethyl)phenyl]-N,N'-  
di-2-naphthalenyl- (9CI) (CA INDEX NAME)



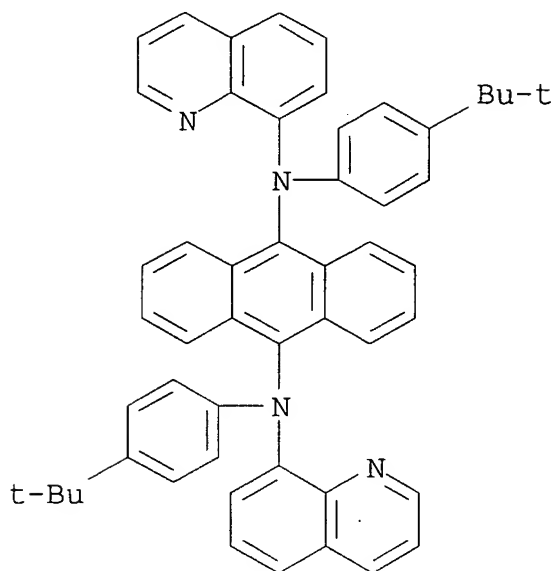
RN 756899-66-8 CAPLUS

CN 9,10-Anthracenediamine, N,N'-bis(4-methylphenyl)-N,N'-di-8-quinoliny- (9CI) (CA INDEX NAME)



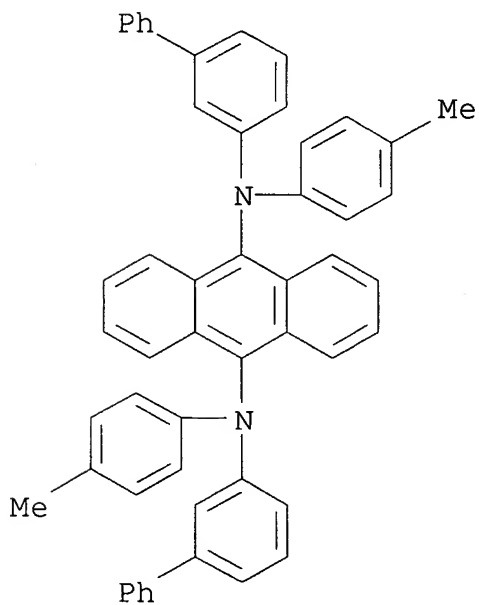
RN 756899-67-9 CAPLUS

CN 9,10-Anthracenediamine, N,N'-bis[4-(1,1-dimethylethyl)phenyl]-N,N'-di-8-quinoliny- (9CI) (CA INDEX NAME)



RN 756899-68-0 CAPLUS

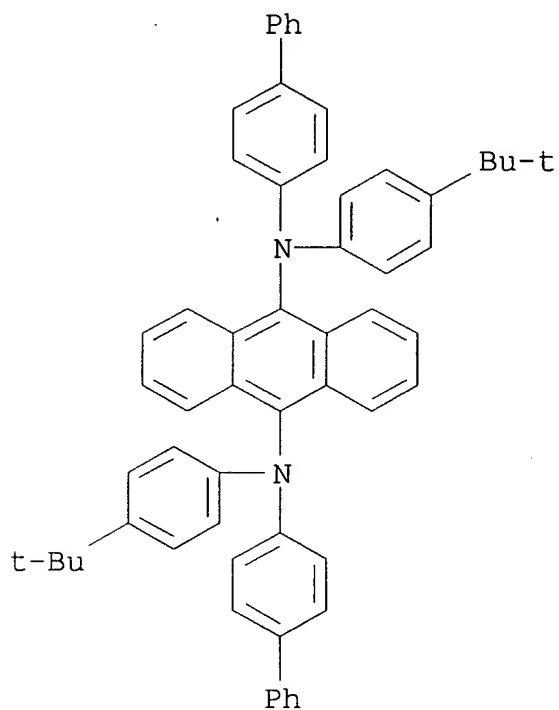
CN 9,10-Anthracenediamine, N,N'-bis[1,1'-biphenyl]-3-yl-N,N'-bis(4-methylphenyl)- (9CI) (CA INDEX NAME)





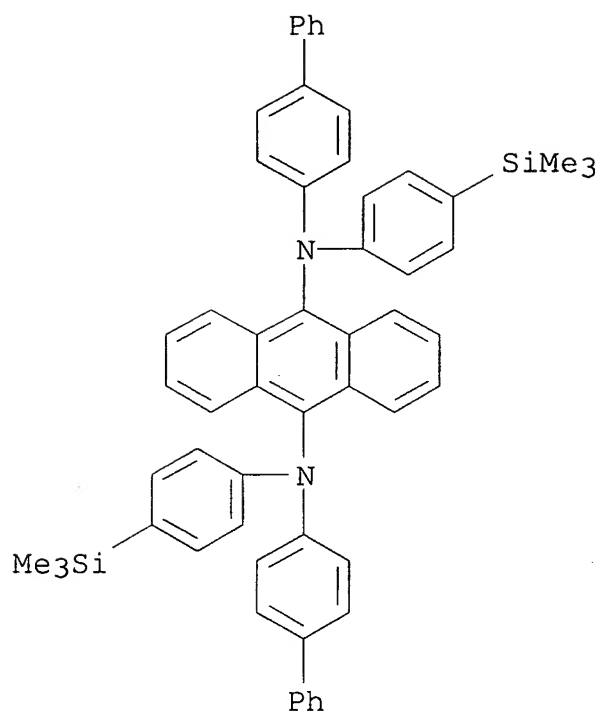
RN 756899-69-1 CAPLUS

CN 9,10-Anthracenediamine, N,N'-bis[1,1'-biphenyl]-4-yl-N,N'-bis[4-(1,1-dimethylethyl)phenyl]- (9CI) (CA INDEX NAME)



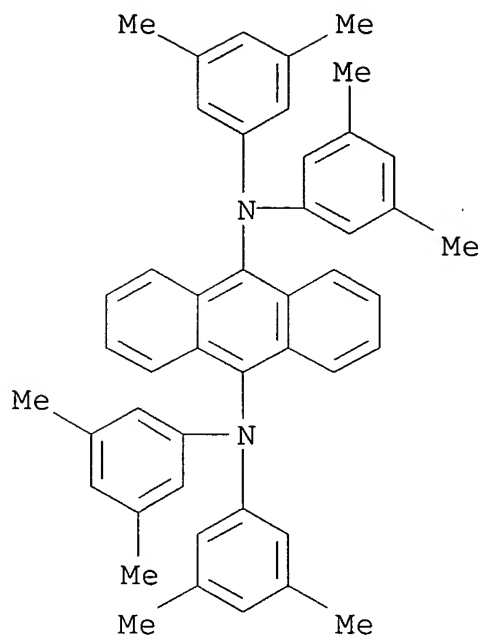
RN 756899-70-4 CAPLUS

CN 9,10-Anthracenediamine, N,N'-bis[1,1'-biphenyl]-4-yl-N,N'-bis[4-(trimethylsilyl)phenyl]- (9CI) (CA INDEX NAME)



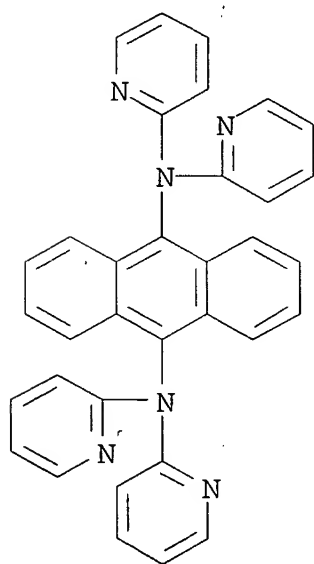
RN 756899-71-5 CAPLUS

CN 9,10-Anthracenediamine, N,N,N',N'-tetrakis(3,5-dimethylphenyl)-  
(9CI) (CA INDEX NAME)



RN 756899-72-6 CAPLUS

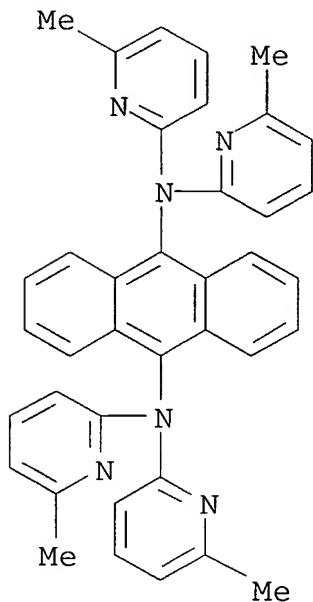
CN 9,10-Anthracenediamine, N,N,N',N'-tetra-2-pyridinyl- (9CI) (CA INDEX NAME)



RN 756899-73-7 CAPLUS

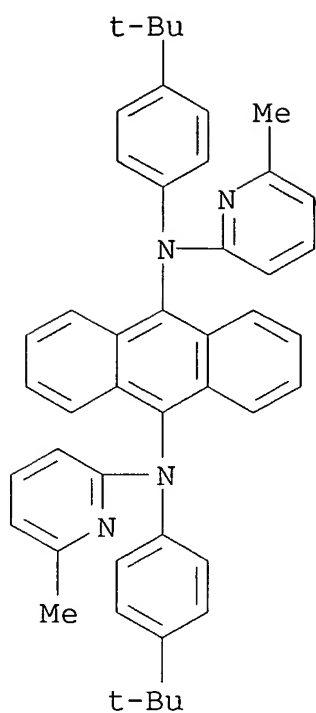
CN 9,10-Anthracenediamine, N,N,N',N'-tetrakis(6-methyl-2-pyridinyl)-

(9CI) (CA INDEX NAME)



RN 756899-74-8 CAPLUS

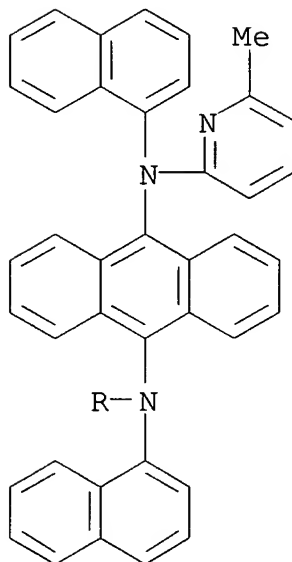
CN 9,10-Anthracenediamine, N,N'-bis[4-(1,1-dimethylethyl)phenyl]-N,N'-bis(6-methyl-2-pyridinyl)- (9CI) (CA INDEX NAME)



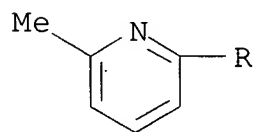
RN 756899-75-9 CAPLUS

CN 9,10-Anthracenediamine, N,N'-bis(6-methyl-2-pyridinyl)-N,N'-di-1-naphthalenyl- (9CI) (CA INDEX NAME)

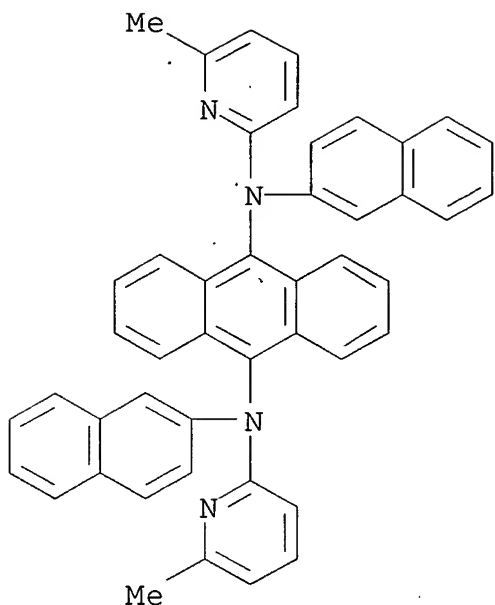
PAGE 1-A



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RN 756899-76-0 CAPLUS  
 CN 9,10-Anthracenediamine, N,N'-bis(6-methyl-2-pyridinyl)-N,N'-di-2-naphthalenyl- (9CI) (CA INDEX NAME)

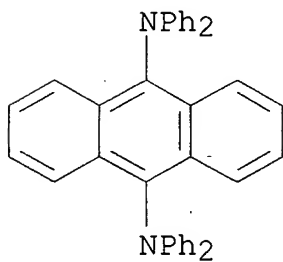


IT 177799-11-0P 189263-81-8P 756899-65-7P

(organic electroluminescent device employing derivative of  
9,10-diaminoanthracene as green luminescent dopant)

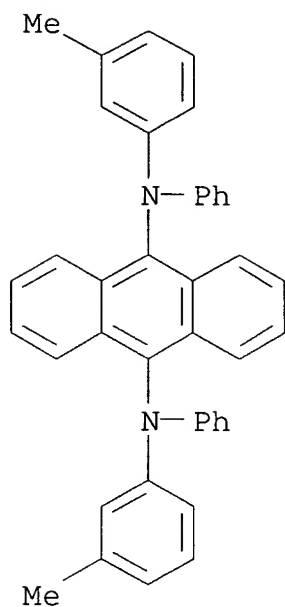
RN 177799-11-0 CAPLUS

CN 9,10-Anthracenediamine, N,N,N',N'-tetraphenyl- (9CI) (CA INDEX  
NAME)



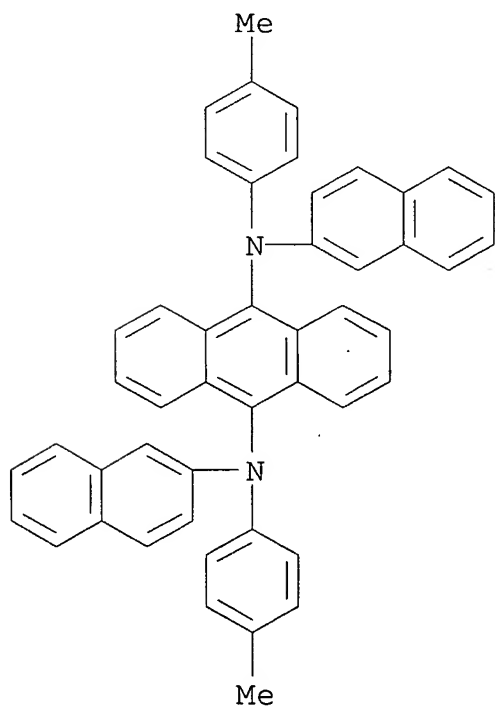
RN 189263-81-8 CAPLUS

CN 9,10-Anthracenediamine, N,N'-bis(3-methylphenyl)-N,N'-diphenyl-  
(9CI) (CA INDEX NAME)



RN 756899-65-7 CAPLUS

CN 9,10-Anthracenediamine, N,N'-bis(4-methylphenyl)-N,N'-di-2-naphthalenyl- (9CI) (CA INDEX NAME)





IC ICM C09K  
CC 73-11 (Optical, Electron, and Mass Spectroscopy and  
Other Related Properties)  
Section cross-reference(s): 25, 76  
ST org electroluminescent device diaminoanthracene deriv green  
luminescent dopant OLED  
IT Luminescent substances  
(green dopant; organic electroluminescent device employing  
derivative  
of 9,10-diaminoanthracene as green luminescent  
dopant)  
IT Electroluminescent devices  
(organic electroluminescent device employing derivative of  
9,10-diaminoanthracene as green luminescent dopant)  
IT 26979-27-1 43069-36-9 55009-75-1  
331749-28-1 400606-81-7 626236-19-9  
653599-45-2 653599-46-3 722498-56-8  
722498-57-9 722498-58-0 722498-59-1  
722498-60-4 722498-61-5 722498-62-6  
722498-64-8 722498-65-9 722498-66-0  
722498-67-1 722498-68-2 722498-69-3  
722498-70-6 722498-71-7 722498-72-8  
722498-73-9 722498-74-0 722498-75-1  
756899-77-1  
(light-emitting host; organic  
electroluminescent device employing derivative of  
9,10-diaminoanthracene as green luminescent dopant)  
IT 722498-63-7  
(light-emitting host; organic  
electroluminescent device employing derivative of  
9,10-diaminoanthracene as green luminescent dopant)  
IT 2085-33-8, Alq3 123847-85-8, NPB  
(organic electroluminescent device employing derivative of  
9,10-diaminoanthracene as green luminescent dopant)  
IT 177799-14-3 177799-16-5 189263-82-9  
190974-21-1 473717-08-7 756899-41-9  
756899-42-0 756899-43-1 756899-44-2  
756899-45-3 756899-46-4 756899-47-5  
756899-48-6 756899-49-7 756899-50-0  
756899-51-1 756899-52-2 756899-53-3  
756899-54-4 756899-55-5 756899-56-6  
756899-57-7 756899-58-8 756899-59-9  
756899-60-2 756899-61-3 756899-62-4  
756899-63-5 756899-64-6 756899-66-8  
756899-67-9 756899-68-0 756899-69-1  
756899-70-4 756899-71-5 756899-72-6  
756899-73-7 756899-74-8 756899-75-9

756899-76-0

(organic electroluminescent device employing derivative of  
9,10-diaminoanthracene as green luminescent dopant)

IT 177799-11-0P 189263-81-8P 756899-65-7P

(organic electroluminescent device employing derivative of  
9,10-diaminoanthracene as green luminescent dopant)

L40 ANSWER 9 OF 65 CAPLUS COPYRIGHT 2005 ACS on STN

ACCESSION NUMBER: 2004:681260 CAPLUS

DOCUMENT NUMBER: 141:215358

TITLE: Organic electroluminescent device

INVENTOR(S): Seo, Jeong Dae; Kim, Hee Jung; Lee, Kyung  
Hoon; Oh, Hyoung Yun; Kim, Myung Seop; Park,  
Chun Gun

PATENT ASSIGNEE(S): LG Electronics Inc., S. Korea

SOURCE: U.S. Pat. Appl. Publ., 19 pp.

CODEN: USXXCO

DOCUMENT TYPE: Patent

LANGUAGE: English

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
US 2004161633	A1	20040819	US 2004-779875	2004 0218
WO 2004075603	A2	20040902	WO 2004-KR342	2004 0219
WO 2004075603	A3	20041111		
W:	AE, AE, AG, AL, AL, AM, AM, AM, AT, AT, AU, AZ, AZ, BA, BB, BG, BG, BR, BR, BW, BY, BY, BZ, BZ, CA, CH, CN, CN, CO, CO, CR, CR, CU, CU, CZ, CZ, DE, DE, DK, DK, DM, DZ, EC, EC, EE, EE, EG, ES, ES, FI, FI, GB, GD, GE, GE, GH, GM, HR, HR, HU, HU, ID, IL, IN, IS, JP, JP, KE, KE, KG, KG, KP, KP, KP, KR, KR, KZ, KZ, KZ, LC, LK, LR, LS, LS, LT, LU, LV, MA, MD, MD, MG, MK, MN, MW, MX, MX, MZ, MZ, NA, NI			
RW:	BW, GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG			

PRIORITY APPLN. INFO.:

KR 2003-10393

A

2003

0219

OTHER SOURCE(S): MARPAT 141:215358

AB Organic electroluminescent devices including a substrate, first and second electrodes, a **light-emitting layer** formed between the first electrode and the second electrode, and a hole-blocking **layer** formed between the **light-emitting layer** and the second electrode are described in which the hole-blocking **layer** is an anthracene derivative with substituents at the 9 and 10 positions,  $\geq 1$  the substituents being selected from a (un)substituted aromatic groups, heterocyclic groups, aliphatic groups, halogens, and H.

IT 43069-36-9, Anthracene, 9,10-bis([1,1'-biphenyl]-4-yl)-  
99372-96-0 122648-99-1 186412-15-7

194295-98-2 194296-12-3 194296-19-0

614735-06-7 722498-63-7 741255-50-5

741255-51-6 741255-52-7 741255-53-8

741255-54-9 741255-55-0 741255-56-1

741255-57-2 741255-58-3 741255-59-4

741255-60-7 741255-61-8 741255-62-9

741255-63-0 741255-64-1 741255-65-2

741255-66-3 741255-67-4 741255-68-5

741255-69-6 741255-70-9 741255-71-0

741255-72-1 741255-73-2 741255-74-3

741255-75-4 741255-76-5 741255-77-6

741255-78-7 741255-79-8 741255-80-1

741255-82-3 741255-84-5 741255-86-7

741255-87-8 741255-88-9 741255-89-0

741255-90-3 741255-91-4 741255-92-5

741255-93-6 741255-94-7 741255-95-8

741255-96-9 741255-97-0 741255-98-1

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741256-02-0 741256-03-1 741256-04-2

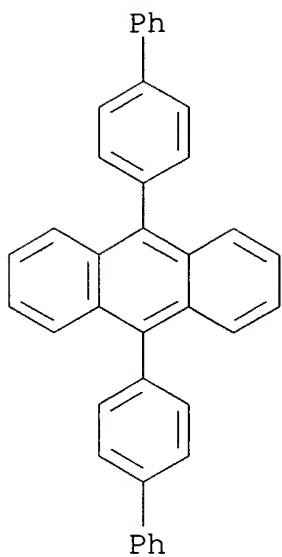
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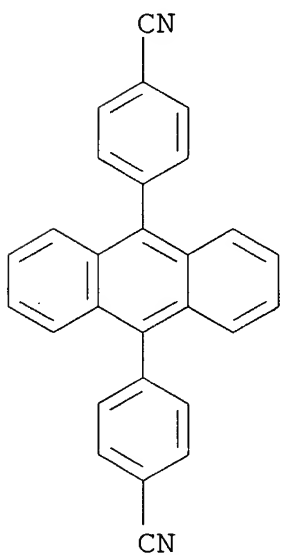
(organic electroluminescent devices with 9,10-anthracene  
derivative-based hole-blocking **layers**)

RN 43069-36-9 CAPLUS

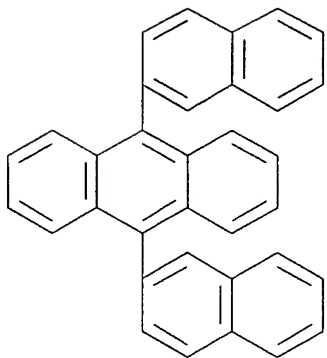
CN Anthracene, 9,10-bis([1,1'-biphenyl]-4-yl)- (9CI) (CA INDEX NAME)



RN 99372-96-0 CAPLUS  
CN Benzonitrile, 4,4'-(9,10-anthracenediyl)bis- (9CI) (CA INDEX NAME)

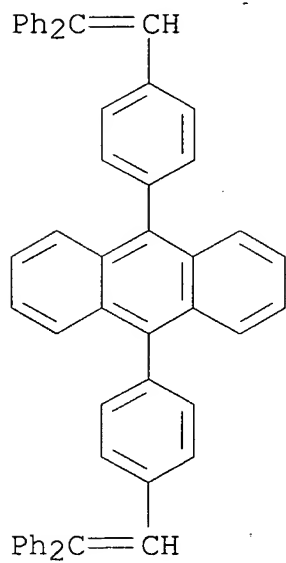


RN 122648-99-1 CAPLUS  
CN Anthracene, 9,10-di-2-naphthalenyl- (9CI) (CA INDEX NAME)



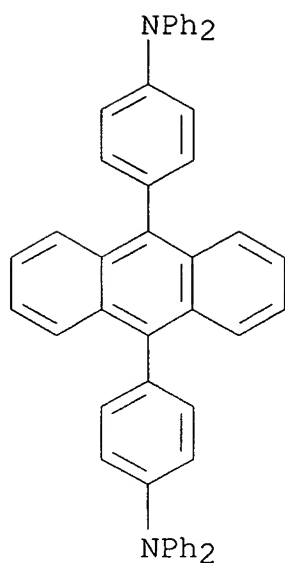
RN 186412-15-7 CAPLUS

CN Anthracene, 9,10-bis[4-(2,2-diphenylethenyl)phenyl]- (9CI) (CA INDEX NAME)



RN 194295-98-2 CAPLUS

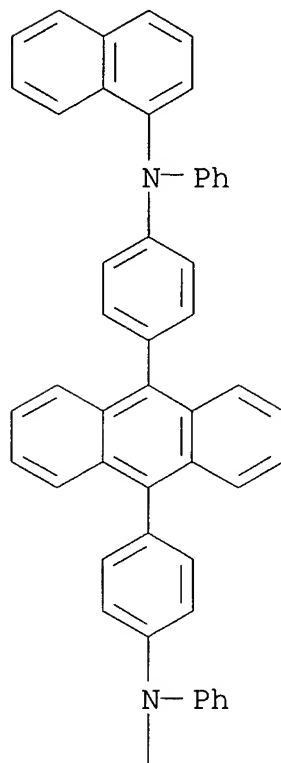
CN Benzenamine, 4,4'-(9,10-anthracenediyl)bis[N,N-diphenyl]- (9CI) (CA INDEX NAME)



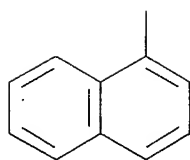
RN 194296-12-3 CAPLUS

CN 1-Naphthalenamine, N,N'-(9,10-anthracenediyl-di-4,1-phenylene)bis(N-phenyl- (9CI) (CA INDEX NAME)

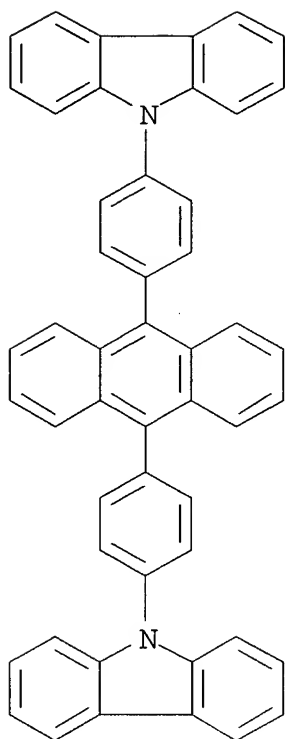
PAGE 1-A



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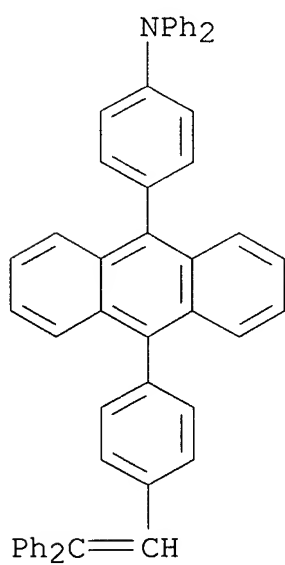


RN 194296-19-0 CAPLUS  
 CN 9H-Carbazole, 9,9'-(9,10-anthracenediyl-di-4,1-phenylene)bis- (9CI)  
 (CA INDEX NAME)



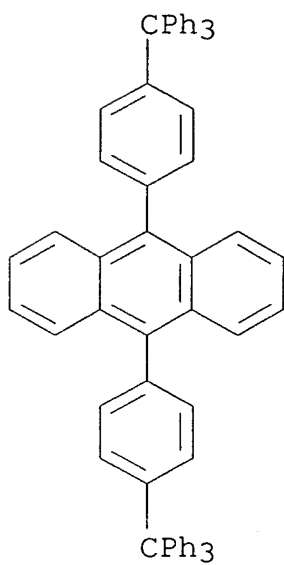
RN 614735-06-7 CAPLUS

CN Benzenamine, 4-[10-[4-(2,2-diphenylethenyl)phenyl]-9-anthracenyl]-  
N,N-diphenyl- (9CI) (CA INDEX NAME)

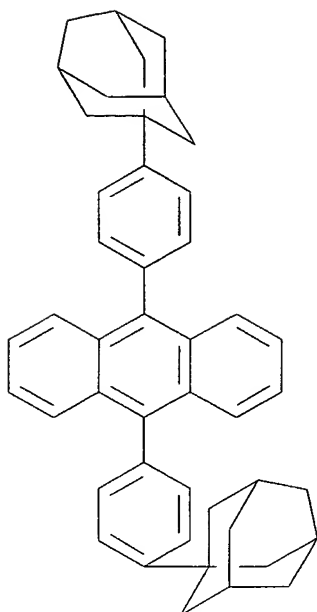




RN 722498-63-7 CAPLUS  
CN Anthracene, 9,10-bis[4-(triphenylmethyl)phenyl]- (9CI) (CA INDEX NAME)

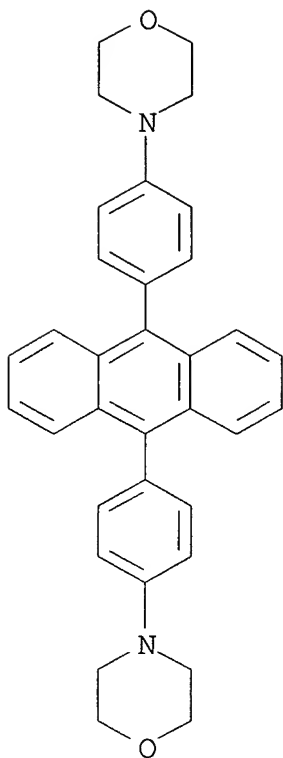


RN 741255-50-5 CAPLUS  
CN Anthracene, 9,10-bis(4-tricyclo[3.3.1.1<sup>3,7</sup>]dec-1-ylphenyl)- (9CI)  
(CA INDEX NAME)



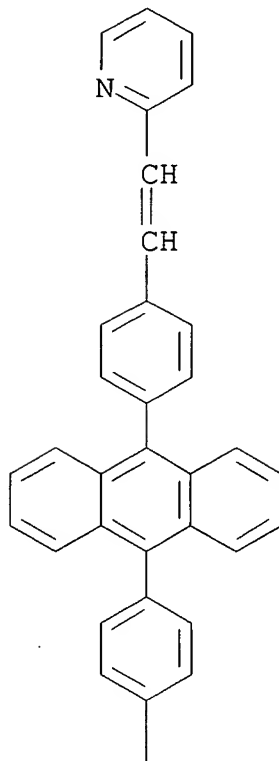
RN 741255-51-6 CAPLUS

CN Morpholine, 4,4'-(9,10-anthracenediyl-di-4,1-phenylene)bis- (9CI)  
(CA INDEX NAME)

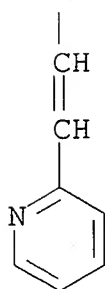


RN 741255-52-7 CAPLUS  
CN Pyridine, 2,2'-[9,10-anthracenediylbis(4,1-phenylene-2,1-ethenediyl)]bis- (9CI) (CA INDEX NAME)

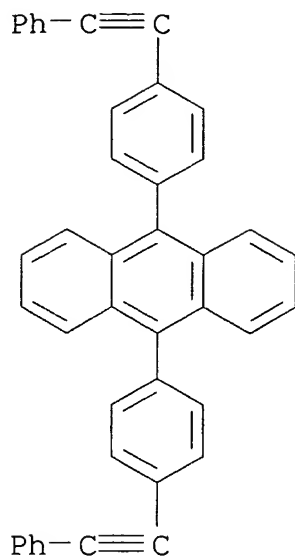
PAGE 1-A



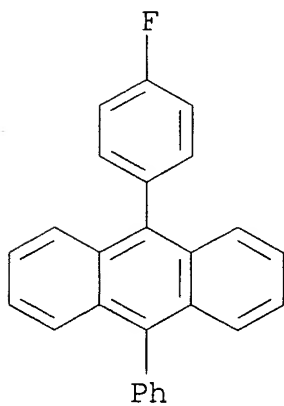
PAGE 2-A



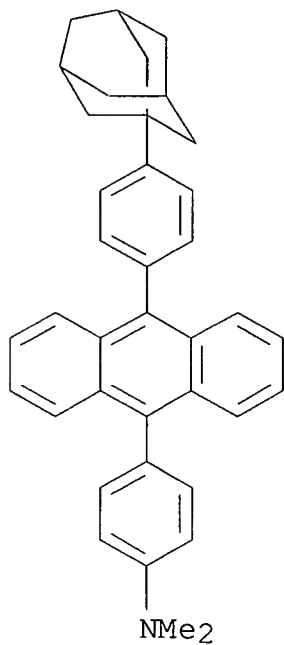
RN 741255-53-8 CAPLUS  
 CN Anthracene, 9,10-bis[4-(phenylethynyl)phenyl]- (9CI) (CA INDEX NAME)



RN 741255-54-9 CAPLUS  
CN Anthracene, 9-(4-fluorophenyl)-10-phenyl- (9CI) (CA INDEX NAME)

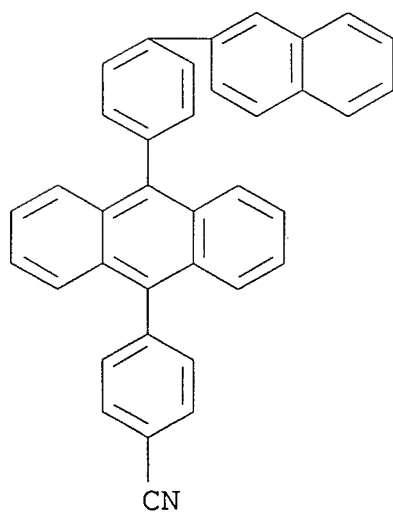


RN 741255-55-0 CAPLUS  
CN Benzenamine, N,N-dimethyl-4-[10-(4-tricyclo[3.3.1.1<sup>3,7</sup>]dec-1-ylphenyl)-9-anthracenyl]- (9CI) (CA INDEX NAME)



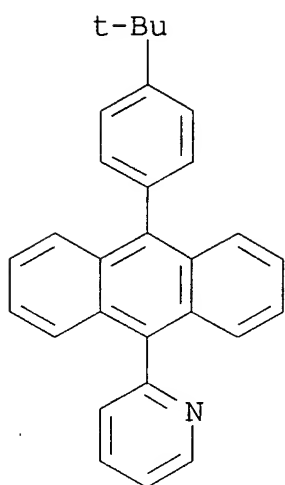
RN 741255-56-1 CAPLUS

CN Benzonitrile, 4-[10-[4-(2-naphthalenyl)phenyl]-9-anthracenyl]-  
(9CI) (CA INDEX NAME)



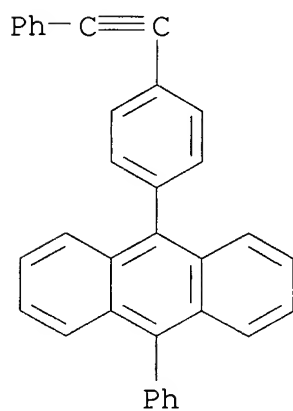
RN 741255-57-2 CAPLUS

CN Pyridine, 2-[10-[4-(1,1-dimethylethyl)phenyl]-9-anthracenyl]-  
(9CI) (CA INDEX NAME)



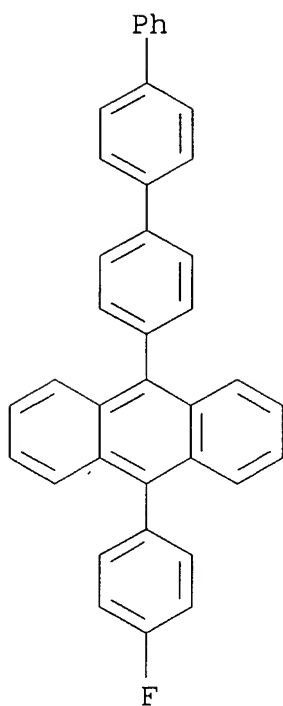
RN 741255-58-3 CAPLUS

CN Anthracene, 9-phenyl-10-[4-(phenylethynyl)phenyl]- (9CI) (CA INDEX NAME)



RN 741255-59-4 CAPLUS

CN Anthracene, 9-(4-fluorophenyl)-10-[1,1':4',1''-terphenyl]-4-yl- (9CI) (CA INDEX NAME)

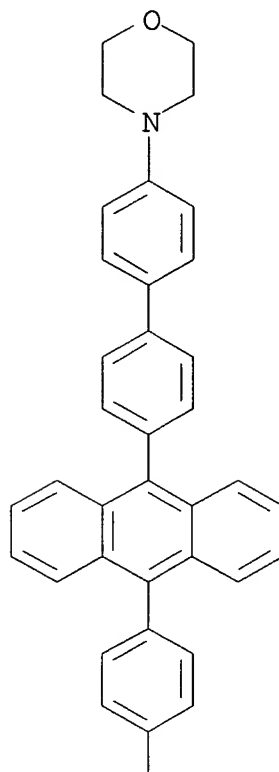


RN 741255-60-7 CAPLUS

CN Morpholine, 4-[4'-[10-[4-(1,1-dimethylethyl)phenyl]-9-anthracenyl][1,1'-biphenyl]-4-yl]- (9CI) (CA INDEX NAME)



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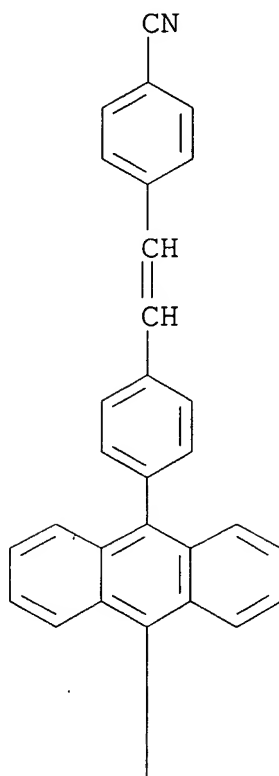


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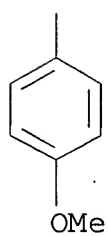
t-Bu

RN 741255-61-8 CAPLUS  
 CN Benzonitrile, 4-[2-[4-[10-(4-methoxyphenyl)-9-anthracenyl]phenyl]ethenyl]- (9CI) (CA INDEX NAME)

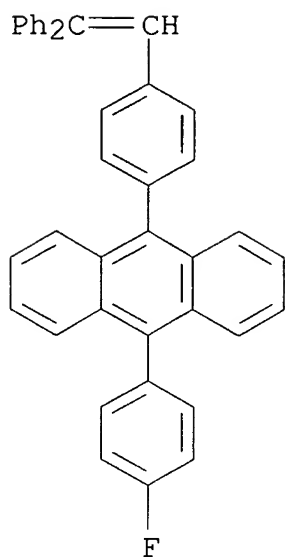
PAGE 1-A



PAGE 2-A

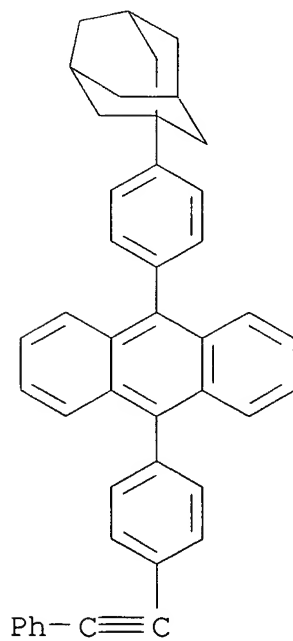


RN 741255-62-9 CAPLUS  
 CN Anthracene, 9-[4-(2,2-diphenylethenyl)phenyl]-10-(4-fluorophenyl)-  
 (9CI) (CA INDEX NAME)



RN 741255-63-0 CAPLUS

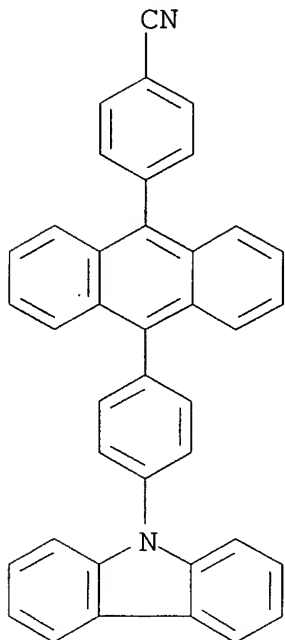
CN Anthracene, 9-[4-(phenylethynyl)phenyl]-10-(4-tricyclo[3.3.1.1<sup>3,7</sup>]dec-1-ylphenyl)- (9CI) (CA INDEX NAME)



RN 741255-64-1 CAPLUS

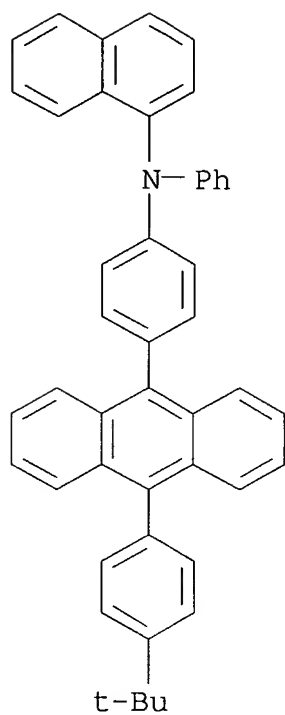
CN Benzonitrile, 4-[10-[4-(9H-carbazol-9-yl)phenyl]-9-anthracenyl]-

(9CI) (CA INDEX NAME)



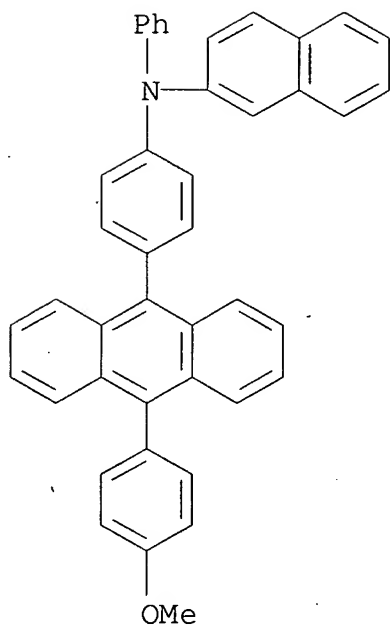
RN 741255-65-2 CAPLUS

CN 1-Naphthalenamine, N-[4-[10-[4-(1,1-dimethylethyl)phenyl]-9-anthracenyl]phenyl]-N-phenyl- (9CI) (CA INDEX NAME)

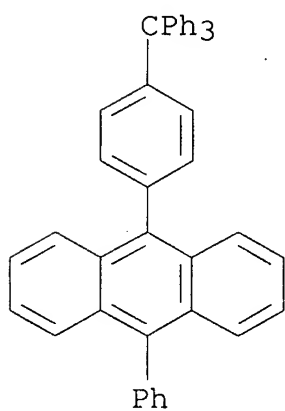


RN 741255-66-3 CAPLUS

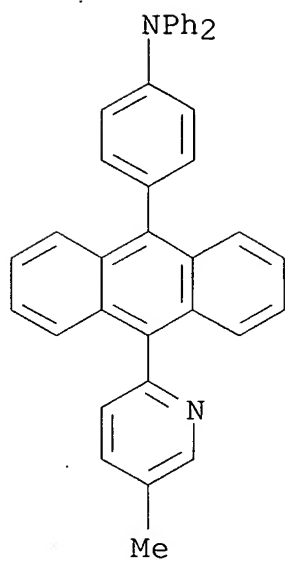
CN 2-Naphthalenamine, N-[4-[10-(4-methoxyphenyl)-9-anthracenyl]phenyl]-N-phenyl- (9CI) (CA INDEX NAME)



RN 741255-67-4 CAPLUS  
CN Anthracene, 9-phenyl-10-[4-(triphenylmethyl)phenyl]- (9CI) (CA INDEX NAME)



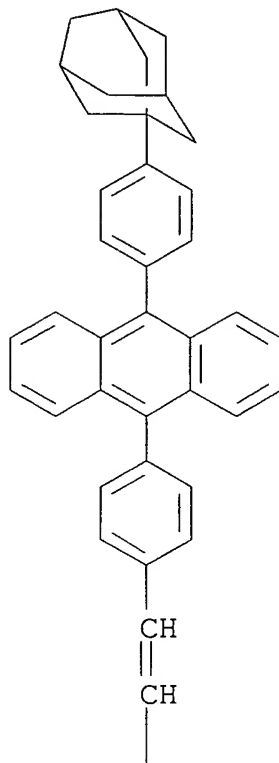
RN 741255-68-5 CAPLUS  
CN Benzenamine, 4-[10-(5-methyl-2-pyridinyl)-9-anthracenyl]-N,N-diphenyl- (9CI) (CA INDEX NAME)



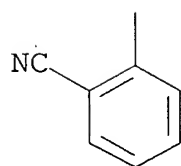
RN 741255-69-6 CAPLUS

CN Benzonitrile, 2-[2-[4-[10-(4-tricyclo[3.3.1.1<sup>3</sup>,7]dec-1-ylphenyl)-9-anthracenyl]phenyl]ethenyl]- (9CI) (CA INDEX NAME)

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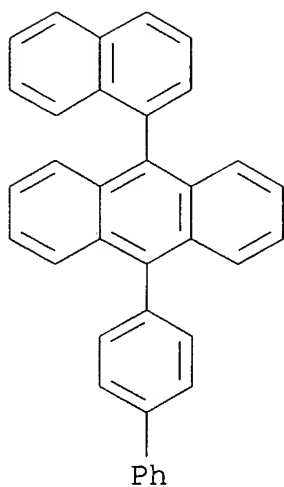


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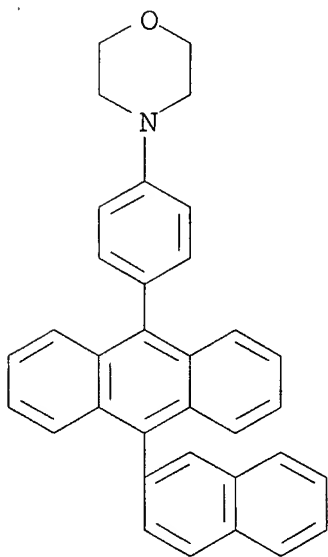
RN 741255-70-9 CAPLUS  
 CN Anthracene, 9-[1,1'-biphenyl]-4-yl-10-(1-naphthalenyl)- (9CI) (CA  
 INDEX NAME)





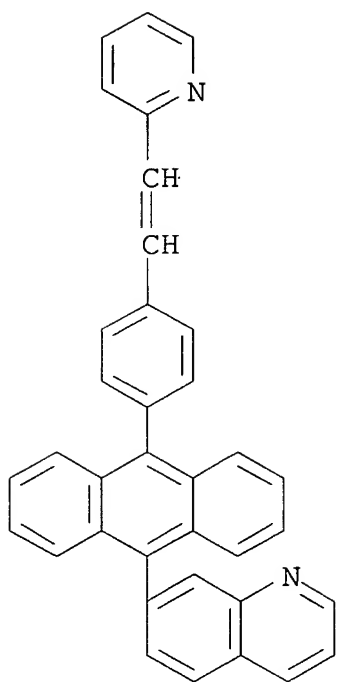
RN 741255-71-0 CAPLUS

CN Morpholine, 4-[4-[10-(2-naphthalenyl)-9-anthracenyl]phenyl]- (9CI)  
(CA INDEX NAME)



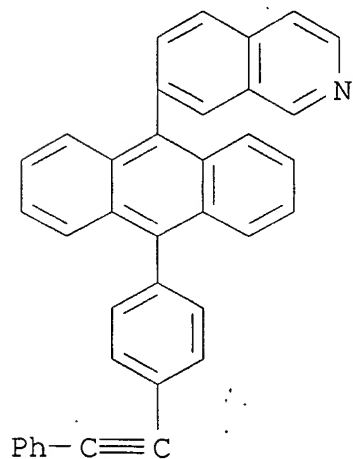
RN 741255-72-1 CAPLUS

CN Quinoline, 7-[10-[4-[2-(2-pyridinyl)ethenyl]phenyl]-9-anthracenyl]-  
(9CI) (CA INDEX NAME)



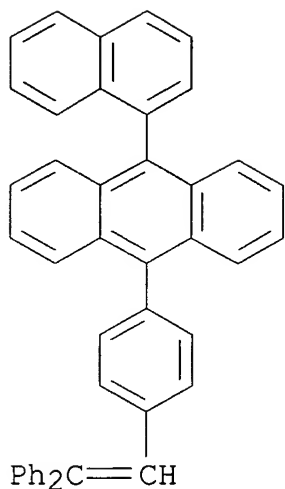
RN 741255-73-2 CAPLUS

CN Isoquinoline, 7-[10-[4-(phenylethynyl)phenyl]-9-anthracenyl]-  
(9CI) (CA INDEX NAME)



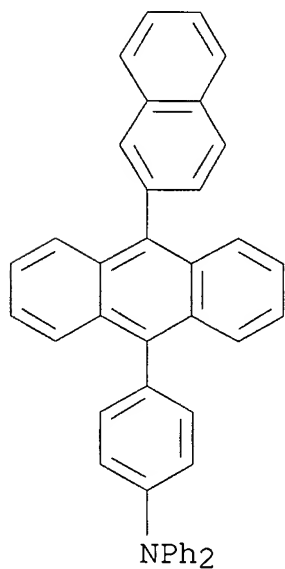
RN 741255-74-3 CAPLUS

CN Anthracene, 9-[4-(2,2-diphenylethenyl)phenyl]-10-(1-naphthalenyl)-  
(9CI) (CA INDEX NAME)



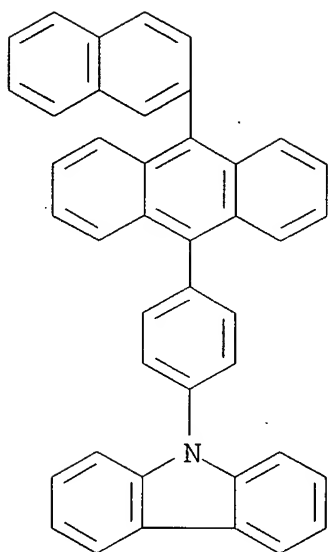
RN 741255-75-4 CAPLUS

CN Benzenamine, 4-[10-(2-naphthalenyl)-9-anthracenyl]-N,N-diphenyl-  
(9CI) (CA INDEX NAME)



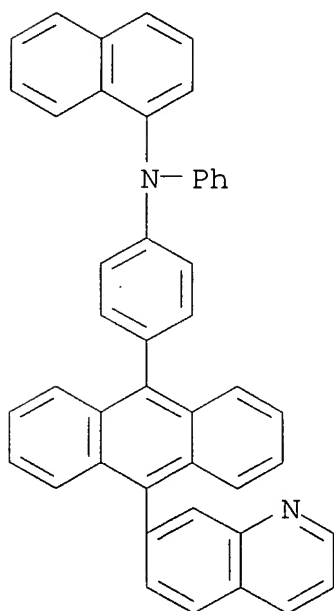
RN 741255-76-5 CAPLUS

CN 9H-Carbazole, 9-[4-[10-(2-naphthalenyl)-9-anthracenyl]phenyl]-  
(9CI) (CA INDEX NAME)



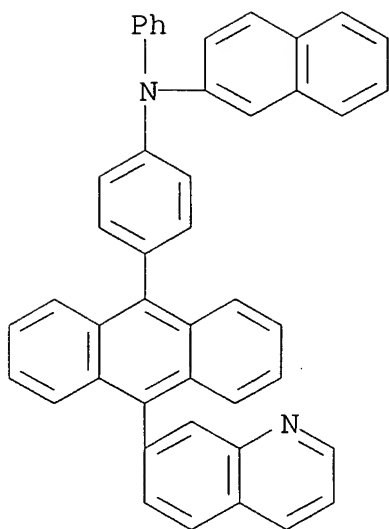
RN 741255-77-6 CAPLUS

CN 1-Naphthalenamine, N-phenyl-N-[4-[10-(7-quinolinyl)-9-anthracenyl]phenyl]- (9CI) (CA INDEX NAME)



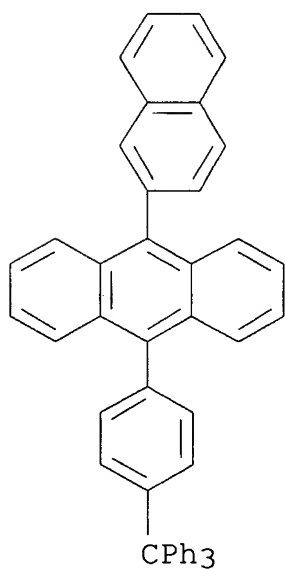
RN 741255-78-7 CAPLUS

CN 2-Naphthalenamine, N-phenyl-N-[4-[10-(7-quinolinyl)-9-anthracenyl]phenyl]- (9CI) (CA INDEX NAME)



RN 741255-79-8 CAPLUS

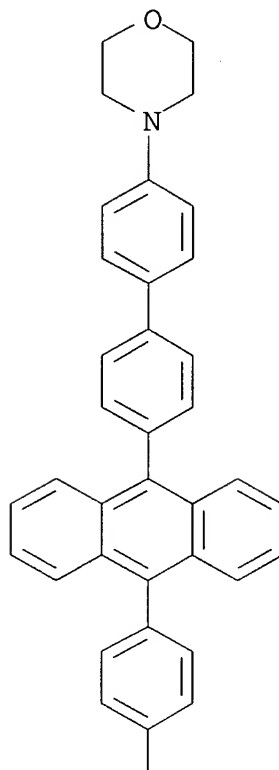
CN Anthracene, 9-(2-naphthalenyl)-10-[4-(triphenylmethyl)phenyl]-  
(9CI) (CA INDEX NAME)



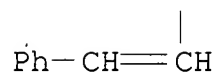
RN 741255-80-1 CAPLUS

CN Morpholine, 4-[4'-[10-[4-(2-phenylethenyl)phenyl]-9-anthracenyl][1,1'-biphenyl]-4-yl]- (9CI) (CA INDEX NAME)

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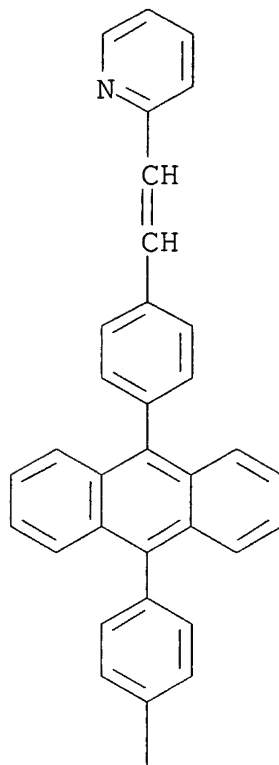
PAGE 2-A



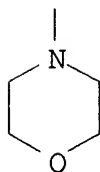
RN 741255-82-3 CAPLUS

CN Morpholine, 4-[4-[10-[4-[2-(2-pyridinyl)ethenyl]phenyl]-9-anthracenyl]phenyl]- (9CI) (CA INDEX NAME)

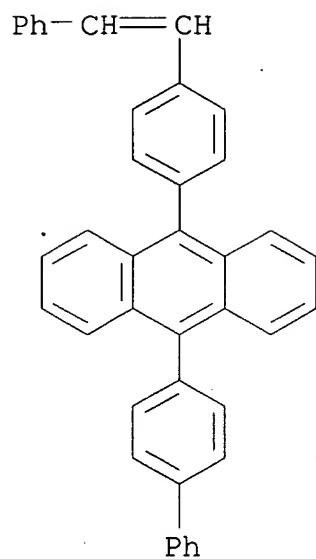
PAGE 1-A



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RN 741255-84-5 CAPLUS  
 CN Anthracene, 9-[1,1'-biphenyl]-4-yl-10-[4-(2-phenylethenyl)phenyl]-  
 (9CI) (CA INDEX NAME)

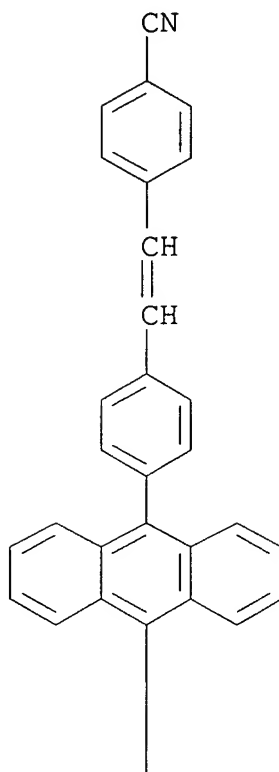


RN 741255-86-7 CAPLUS

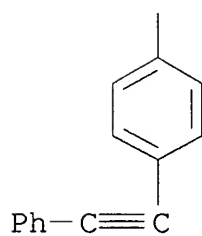
CN Benzonitrile, 4-[2-[4-[10-[4-(phenylethynyl)phenyl]-9-anthracenyl]phenyl]ethenyl]- (9CI) (CA INDEX NAME)



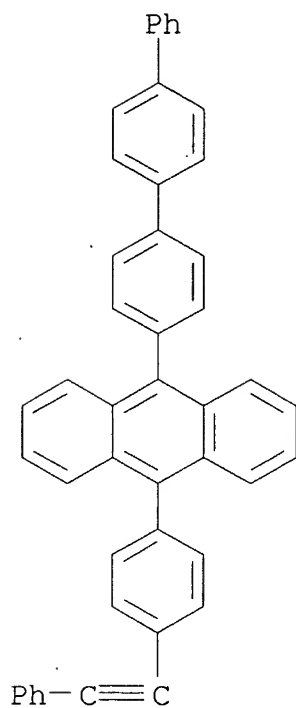
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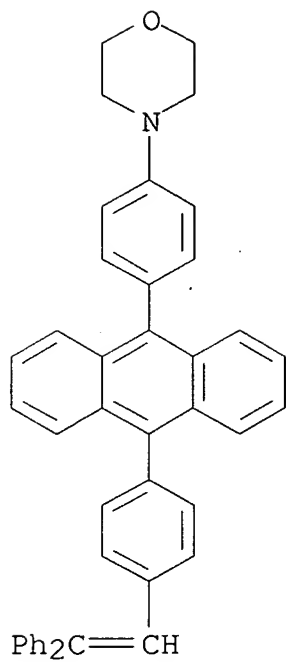


RN 741255-87-8 CAPLUS  
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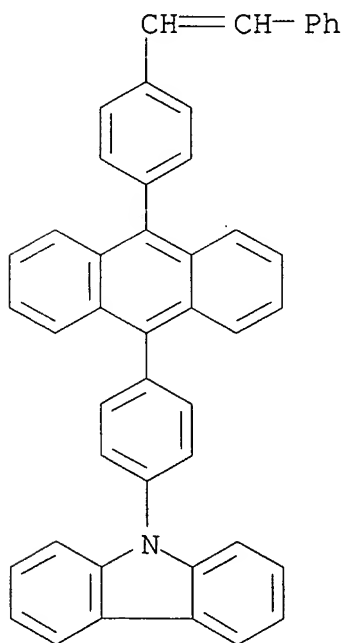
RN 741255-88-9 CAPLUS

CN Morpholine, 4-[4-[10-[4-(2,2-diphenylethenyl)phenyl]-9-anthracenyl]phenyl]- (9CI) (CA INDEX NAME)



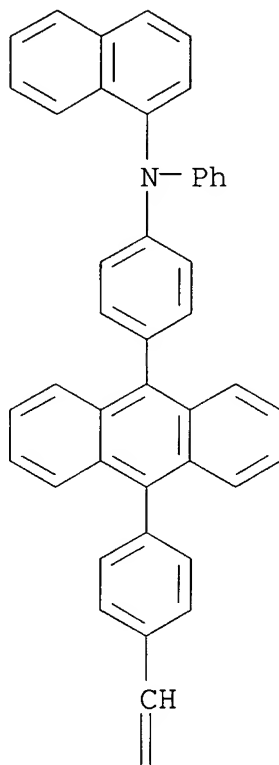
RN 741255-89-0 CAPLUS

CN 9H-Carbazole, 9-[4-[10-[4-(2-phenylethenyl)phenyl]-9-anthracenyl]phenyl]- (9CI) (CA INDEX NAME)

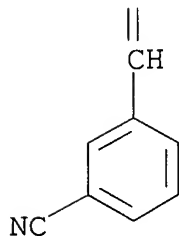


RN 741255-90-3 CAPLUS  
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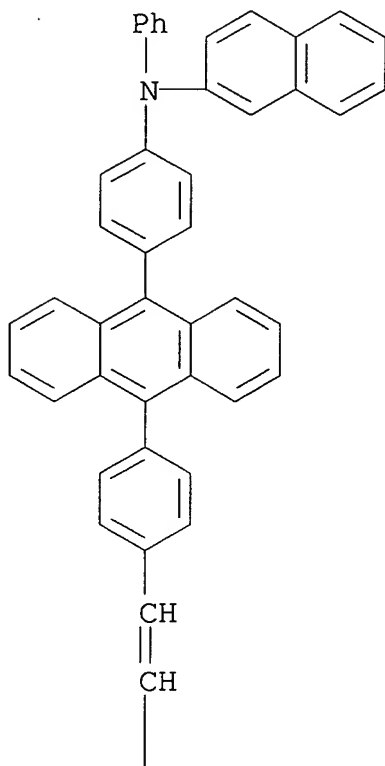
PAGE 2-A



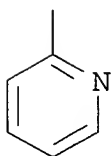
RN 741255-91-4 CAPLUS  
CN 2-Naphthalenamine, N-phenyl-N-[4-[10-[4-[2-(2-benzonitrile-3-yl)ethenyl]phenyl]-9-anthracenyl]phenyl]- (9CI) (CA INDEX NAME)

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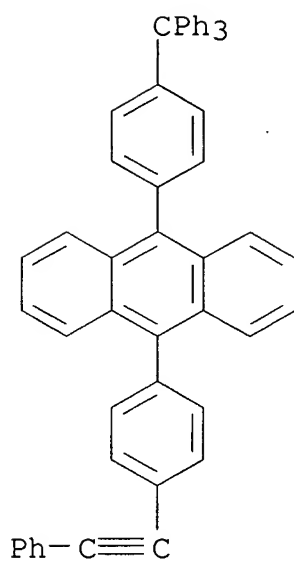
PAGE 1-A



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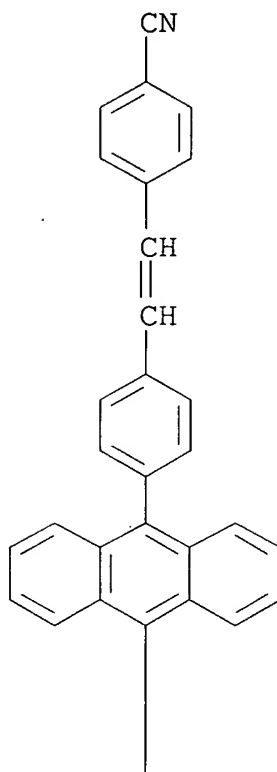
RN 741255-92-5 CAPLUS  
CN Anthracene, 9-[4-(phenylethynyl)phenyl]-10-[4-(triphenylmethyl)phenyl]- (9CI) (CA INDEX NAME)



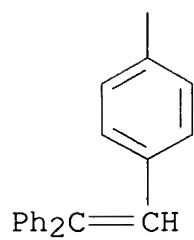
RN 741255-93-6 CAPLUS

CN Benzonitrile, 4-[2-[4-[10-[4-(2,2-diphenylethenyl)phenyl]-9-anthracenyl]phenyl]ethenyl]- (9CI) (CA INDEX NAME)

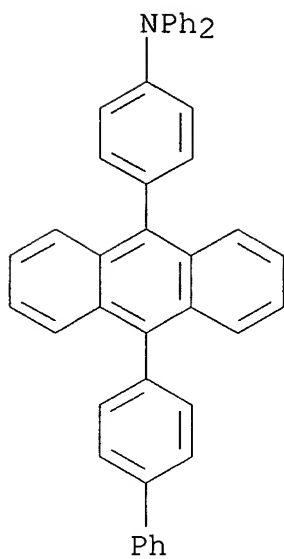
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RN 741255-94-7 CAPLUS  
 CN Benzenamine, 4-(10-[1,1'-biphenyl]-4-yl-9-anthracenyl)-N,N-diphenyl- (9CI) (CA INDEX NAME)

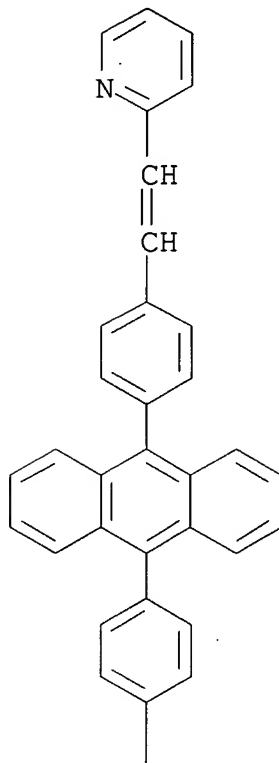


RN 741255-95-8 CAPLUS

CN Pyridine, 2-[2-[4-[10-[4-(triphenylmethyl)phenyl]-9-anthracenyl]phenyl]ethenyl]- (9CI) (CA INDEX NAME)



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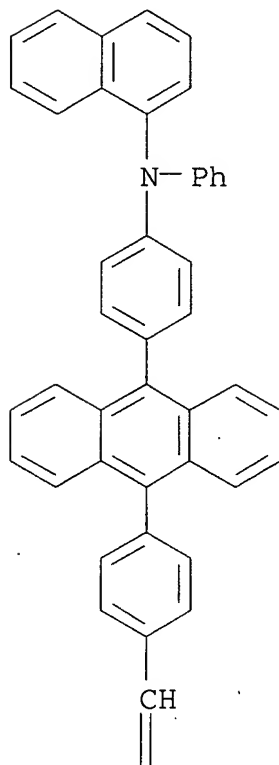


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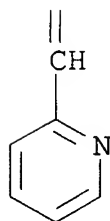
|  
CPh<sub>3</sub>

RN 741255-96-9 CAPLUS  
CN 1-Naphthalenamine, N-phenyl-N-[4-[10-[4-[2-(2-pyridinyl)ethenyl]phenyl]-9-anthracenyl]phenyl]- (9CI) (CA INDEX NAME)

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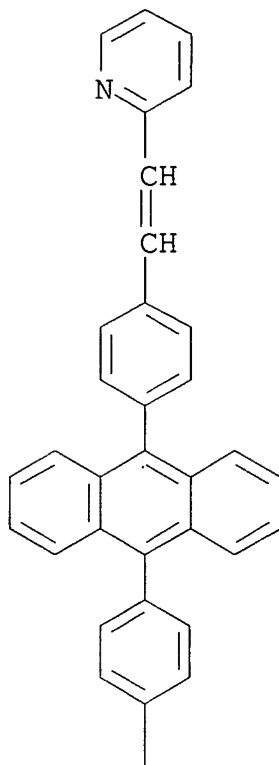


PAGE 2-A

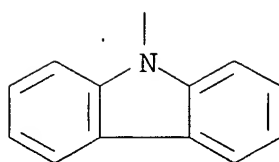


RN 741255-97-0 CAPLUS  
 CN 9H-Carbazole, 9-[4-[10-[4-[2-(2-pyridinyl)ethenyl]phenyl]-9-anthracenyl]phenyl]- (9CI) (CA INDEX NAME)

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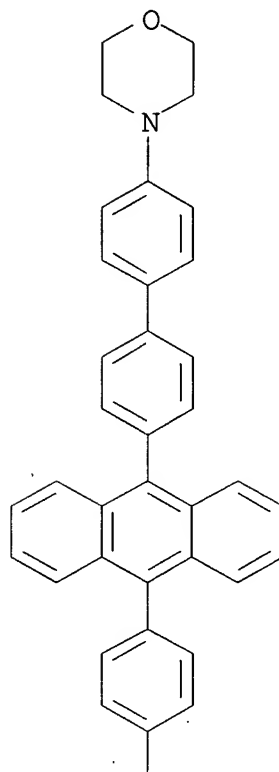


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RN 741255-98-1 CAPLUS  
CN Benzenamine, 4-[10-[4'-(4-morpholinyl)[1,1'-biphenyl]-4-yl]-9-anthracenyl]-N,N-diphenyl- (9CI) (CA INDEX NAME)

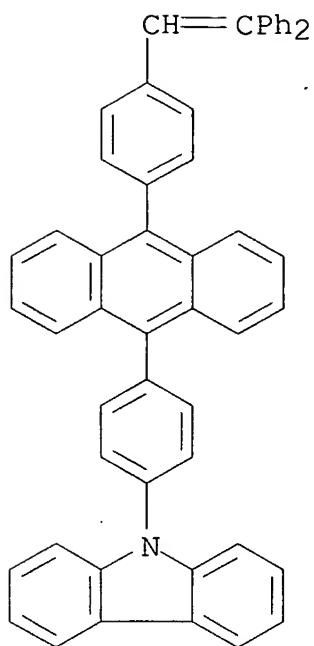
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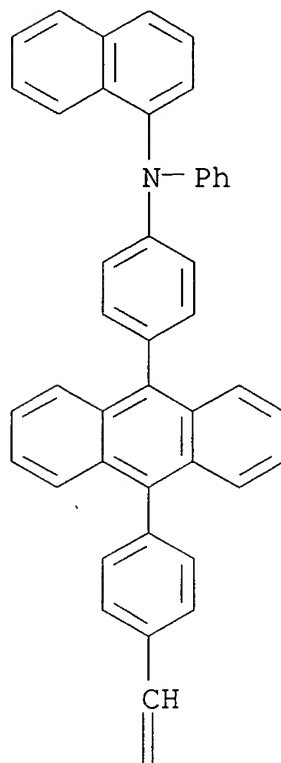
RN 741255-99-2 CAPLUS  
CN 9H-Carbazole, 9-[4-[10-[4-(2,2-diphenylethenyl)phenyl]-9-anthracenyl]phenyl]- (9CI) (CA INDEX NAME)



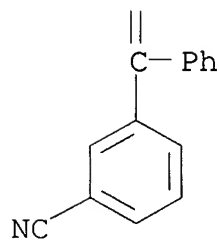
RN 741256-00-8 CAPLUS

CN Benzonitrile, 3-[2-[4-[10-[4-(1-naphthalenylphenylamino)phenyl]-9-anthracenyl]phenyl]-1-phenylethenyl]- (9CI) (CA INDEX NAME)

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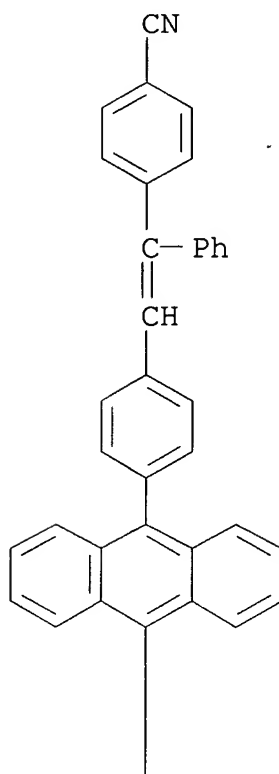
PAGE 2-A



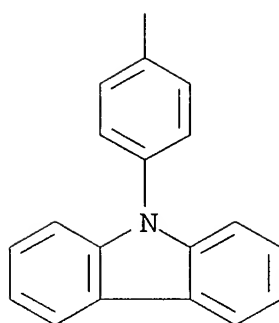
RN 741256-01-9 CAPLUS  
CN 2-Naphthalenamine, N-[4-[10-[4-(2,2-diphenylethenyl)phenyl]-9-anthracenyl]phenyl]-N-phenyl- (9CI) (CA INDEX NAME)



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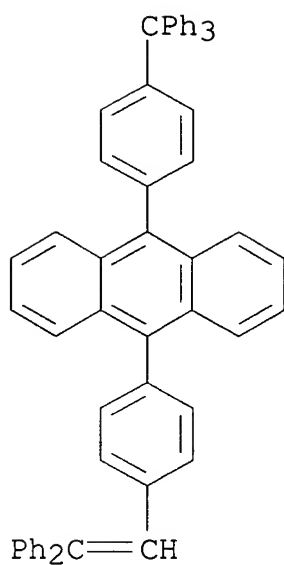


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RN 741256-03-1 CAPLUS  
CN Anthracene, 9-[4-(2,2-diphenylethenyl)phenyl]-10-[4-(triphenylmethyl)phenyl]- (9CI) (CA INDEX NAME)

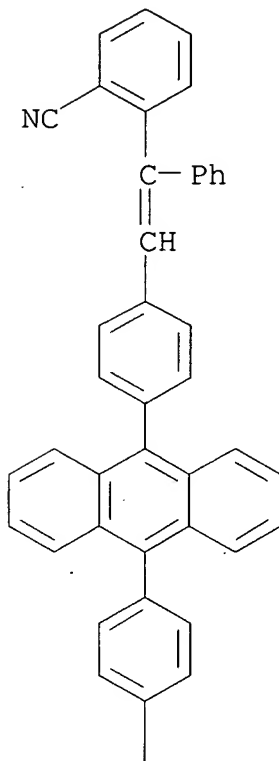




RN 741256-04-2 CAPLUS

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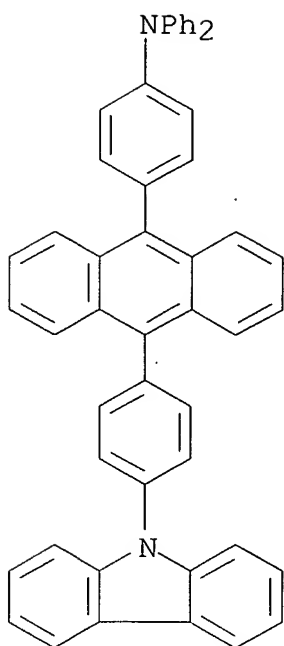


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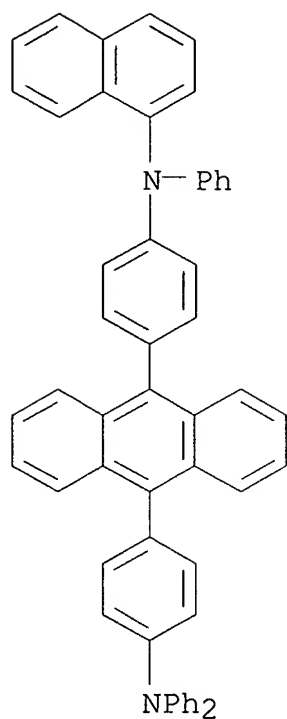
RN 741256-05-3 CAPLUS

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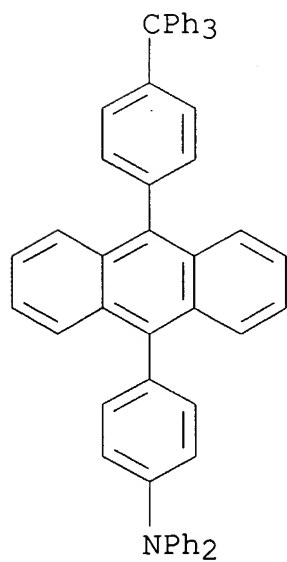
RN 741256-06-4 CAPLUS

CN 1-Naphthalenamine, N-[4-[10-[4-(diphenylamino)phenyl]-9-anthracenyl]phenyl]-N-phenyl- (9CI) (CA INDEX NAME)



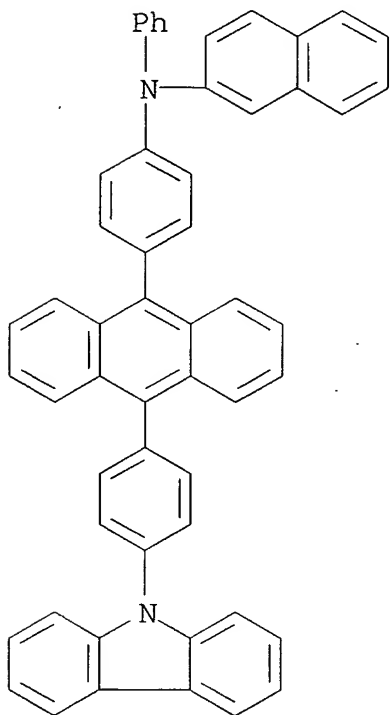
RN 741256-07-5 CAPLUS

CN Benzenamine, N,N-diphenyl-4-[10-[4-(triphenylmethyl)phenyl]-9-anthracenyl]- (9CI) (CA INDEX NAME)



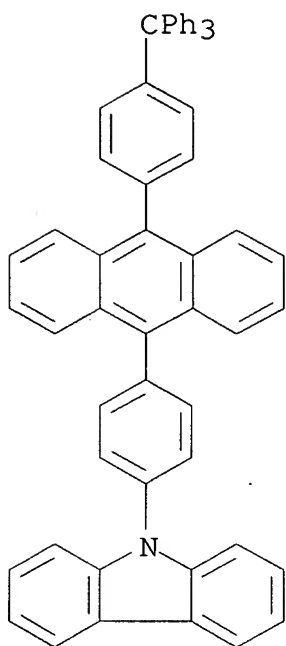
RN 741256-08-6 CAPLUS

CN 2-Naphthalenamine, N-[4-[10-[4-(9H-carbazol-9-yl)phenyl]-9-anthracenyl]phenyl]-N-phenyl- (9CI) (CA INDEX NAME)



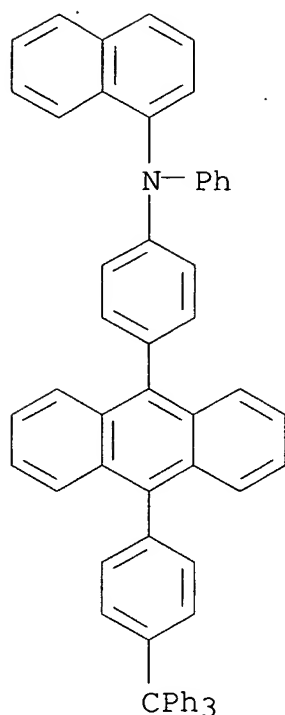
RN 741256-09-7 CAPLUS

CN 9H-Carbazole, 9-[4-[10-[4-(triphenylmethyl)phenyl]-9-anthracenyl]phenyl]- (9CI) (CA INDEX NAME)



RN 741256-10-0 CAPLUS

CN 1-Naphthalenamine, N-phenyl-N-[4-[10-[4-(triphenylmethyl)phenyl]-9-anthracenyl]phenyl]- (9CI) (CA INDEX NAME)



IC ICM H05B033-12  
 NCL 428690000; 428917000; 313504000; 313506000  
 CC 73-11 (**Optical**, Electron, and Mass Spectroscopy and  
 Other Related Properties)  
 Section cross-reference(s): 76  
 ST org electroluminescent device anthracene deriv hole blocking  
**layer**  
 IT Electroluminescent devices  
 (organic; organic electroluminescent devices with 9,10-anthracene  
 derivative-based hole-blocking **layers**)  
 IT 147-14-8, Copper phthalocyanine 2085-33-8, Tris(8-  
 hydroxyquinolinato)aluminum **43069-36-9**, Anthracene,  
 9,10-bis([1,1'-biphenyl]-4-yl)- 58328-31-7, CBP (dye)  
 99372-96-0 122648-99-1 123847-85-8  
 186412-15-7 194295-98-2 194296-12-3  
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741256-03-1 741256-04-2 741256-05-3  
741256-06-4 741256-07-5 741256-08-6  
741256-09-7 741256-10-0

(organic electroluminescent devices with 9,10-anthracene  
derivative-based hole-blocking layers)

L40 ANSWER 10 OF 65 CAPLUS COPYRIGHT 2005 ACS on STN

ACCESSION NUMBER: 2004:587037 CAPLUS

DOCUMENT NUMBER: 141:131068

TITLE: Electroluminescent compositions, and their  
organic electroluminescent devices  
emitting light from green to  
yellow

INVENTOR(S): Onikubo, Shunichi; Yauchi, Hiroyuki; Yagi,  
Tamao; Kaneko, Tetsuya; Tanaka, Hiroaki;  
Takada, Yasuyuki

PATENT ASSIGNEE(S): Toyo Ink Mfg. Co., Ltd., Japan

SOURCE: Jpn. Kokai Tokkyo Koho, 67 pp.

CODEN: JKXXAF

DOCUMENT TYPE: Patent

LANGUAGE: Japanese

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
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JP 2004206893	A2	20040722	JP 2002-371262	2002 1224
PRIORITY APPLN. INFO.:				JP 2002-371262 2002 1224

AB The compns. contain (A) compds. having peaks at 475-600 nm in  
fluorescent spectra of their solid films and (B) compds. showing  
the sum of areas (intensities)  $\leq 20\%$  at  $\leq 500$  nm and  
 $\geq 600$  nm, or at  $\geq 500$  nm based on total areas  
(intensities) at 400-800 nm in fluorescent spectrum of solid films



comprising A and 5% B. Organic electroluminescent devices having emitter **layers** containing the compns. containing 1:0.1 perylene derivative and diketopyrrolopyrrole derivative showed high **luminescence** intensity and good durability in repeated use.

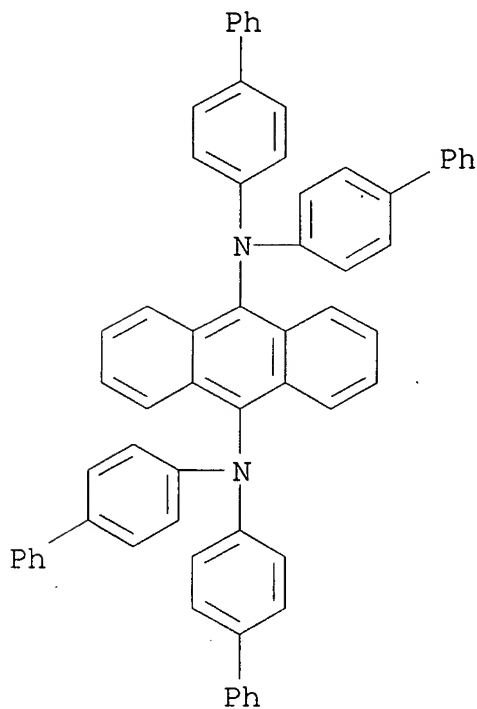
IT 189263-85-2 194296-06-5 724789-30-4

724789-31-5 724789-36-0 724789-45-1

(dopant; electroluminescent compns. for organic electroluminescent devices showing high **luminescence** intensity and durability in repeated use)

RN 189263-85-2 CAPLUS

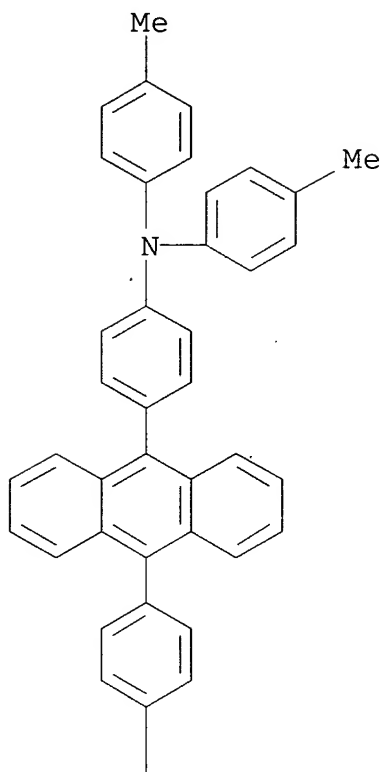
CN 9,10-Anthracenediamine, N,N,N',N'-tetrakis([1,1'-biphenyl]-4-yl)-  
(9CI) (CA INDEX NAME)



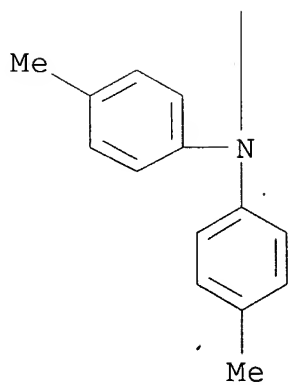
RN 194296-06-5 CAPLUS

CN Benzenamine, 4,4'-(9,10-anthracenediyl)bis[N,N-bis(4-methylphenyl)-  
(9CI) (CA INDEX NAME)

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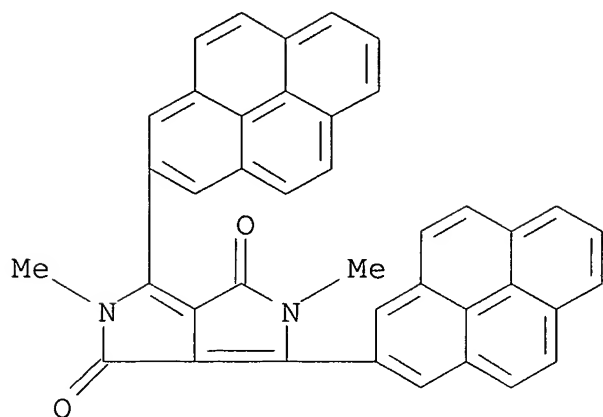


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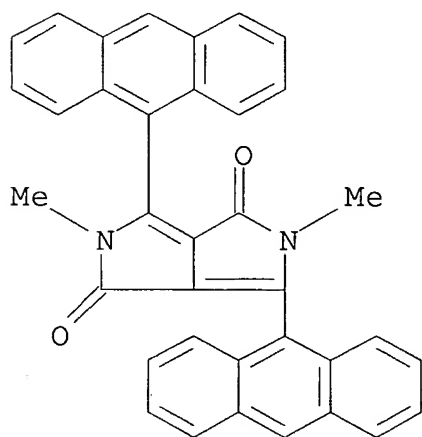
RN 724789-30-4 CAPLUS  
CN Pyrrolo[3,4-c]pyrrole-1,4-dione, 2,5-dihydro-2,5-dimethyl-3,6-di-2-

pyrenyl- (9CI) (CA INDEX NAME)



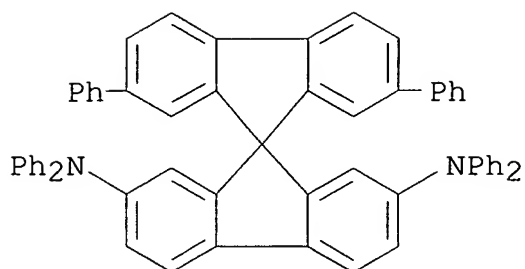
RN 724789-31-5 CAPLUS

CN Pyrrolo[3,4-c]pyrrole-1,4-dione, 3,6-di-9-anthracenyl-2,5-dihydro-2,5-dimethyl- (9CI) (CA INDEX NAME)



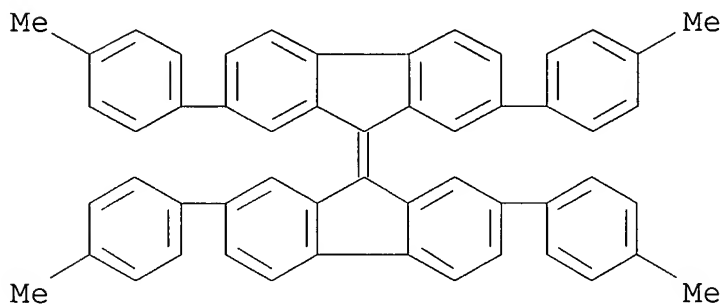
RN 724789-36-0 CAPLUS

CN 9,9'-Spirobi[9H-fluorene]-2,7-diamine, N,N,N',N',2',7'-hexaphenyl- (9CI) (CA INDEX NAME)



RN 724789-45-1 CAPLUS

CN 9H-Fluorene, 9-[2,7-bis(4-methylphenyl)-9H-fluoren-9-ylidene]-2,7-bis(4-methylphenyl)- (9CI) (CA INDEX NAME)

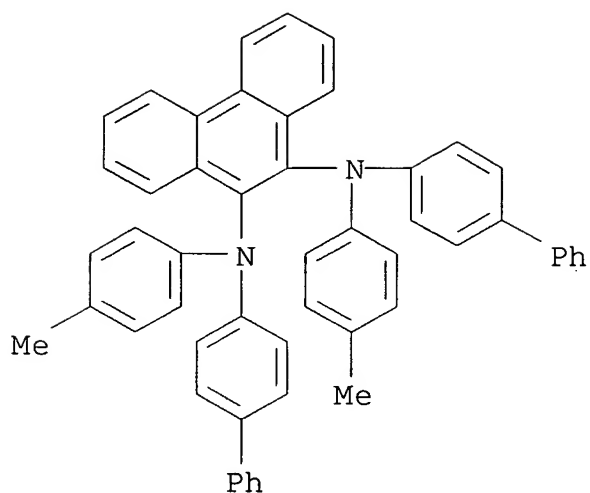


IT 175395-59-2 724789-65-5

(host; electroluminescent compns. for organic electroluminescent devices showing high **luminescence** intensity and durability in repeated use)

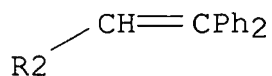
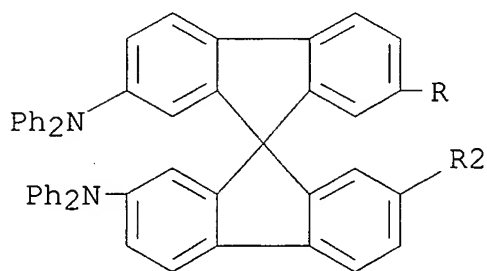
RN 175395-59-2 CAPLUS

CN 9,10-Phenanthrenediamine, N,N'-bis([1,1'-biphenyl]-4-yl)-N,N'-bis(4-methylphenyl)- (9CI) (CA INDEX NAME)



RN 724789-65-5 CAPLUS

CN 9,9'-Spirobi[9H-fluorene]-2,2'-diamine, 7,7'-bis(2,2-diphenylethenyl)-N,N,N',N'-tetraphenyl- (9CI) (CA INDEX NAME)



IC ICM H05B033-14

ICS C09K011-06

CC 73-11 (Optical, Electron, and Mass Spectroscopy and Other Related Properties)

IT Luminescent substances

(electroluminescent; electroluminescent compns. for organic electroluminescent devices showing high **luminescence** intensity and durability in repeated use)

IT Electroluminescent devices

(from green to yellow; electroluminescent compns. for organic electroluminescent devices showing high **luminescence** intensity and durability in repeated use)

IT 19205-19-7 41175-45-5 149247-31-4 155306-71-1 158782-55-9,  
Tetrabenzo[fg,ij,pq,uv]pentaphene 184101-39-1

**189263-85-2 194296-06-5 227009-37-2**

252756-13-1 307303-24-8 519180-18-8 519180-37-1

536761-34-9 536761-41-8 536761-56-5 724789-12-2,

2,2'-Biperylene 724789-15-5, Perylo[1,12-bcd:6,7-b'c'd']difuran

724789-18-8 724789-20-2 724789-23-5 724789-25-7

724789-28-0 **724789-30-4 724789-31-5**

724789-33-7 **724789-36-0 724789-45-1**

(dopant; electroluminescent compns. for organic electroluminescent devices showing high **luminescence** intensity and durability in repeated use)

IT 2085-33-8 23467-27-8 96158-94-0 96159-17-0 107680-84-2

107680-85-3 123847-85-8 **175395-59-2** 188049-37-8

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384343-78-6 384343-80-0 474067-56-6 477719-72-5

536761-33-8 536761-36-1 536761-38-3 536761-39-4

536761-55-4 724788-95-8 724788-97-0 724788-98-1

724789-00-8 724789-02-0 724789-03-1 724789-05-3

724789-60-0 724789-62-2 **724789-65-5**

(host; electroluminescent compns. for organic electroluminescent devices showing high **luminescence** intensity and durability in repeated use)

L40 ANSWER 11 OF 65 CAPLUS COPYRIGHT 2005 ACS on STN

ACCESSION NUMBER: 2004:584660 CAPLUS

DOCUMENT NUMBER: 141:131060

TITLE: Tertiary aromatic amines and their organic electroluminescent devices showing long service life

INVENTOR(S): Totani, Yoshiyuki; Shimamura, Takehiko; Tanabe, Yoshimitsu; Tsukada, Hidetaka

PATENT ASSIGNEE(S): Mitsui Chemicals Inc., Japan

SOURCE: Jpn. Kokai Tokkyo Koho, 47 pp.

CODEN: JKXXAF

DOCUMENT TYPE: Patent

LANGUAGE: Japanese

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
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JP 2004203765

A2

20040722

JP 2002-373354

2002

1225

PRIORITY APPLN. INFO.:

JP 2002-373354

2002

1225

OTHER SOURCE(S): MARPAT 141:131060

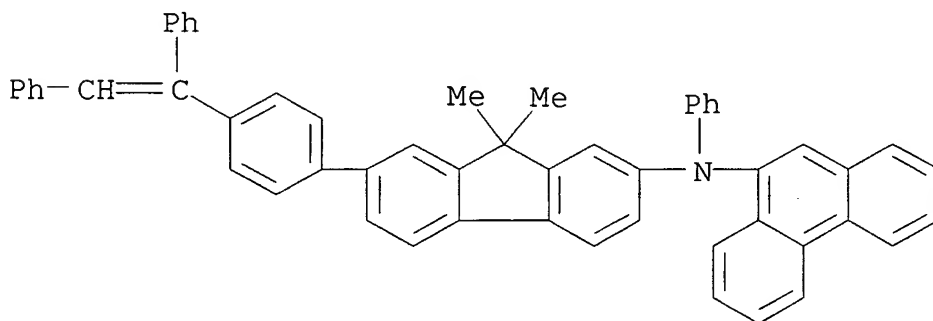
AB The amines are (E)- or (Z)- Ar1Ar2NXCAr4:CRAr3 [I; Ar1-Ar4 = (un)substituted aromatic hydrocarbonyl, (un)substituted aromatic heterocyclyl; Ar1Ar2 may form N-containing heterocyclic group; R = H, cyano, halo, (un)substituted (cyclo)alkyl, (un)substituted aromatic hydrocarbonyl, (un)substituted aromatic heterocyclyl; X = aromatic hydrocarbonylene, aromatic heterocyclylene]. Thus, (E)- or (Z)-I (Ar1 = Ar3 = Ar4 = Ph, Ar2 = 6-phenylnaphthalen-2-yl, R = H, X = 4,4'-biphenylene) was manufactured and used as a hole-transporting layer for organic electroluminescent device.

IT 724792-73-8P

(manufacture of tertiary aromatic amines for organic electroluminescent devices showing long service life)

RN 724792-73-8 CAPLUS

CN 9-Phenanthrenamine, N-[7-[4-(1,2-diphenylethenyl)phenyl]-9,9-dimethyl-9H-fluoren-2-yl]-N-phenyl- (9CI) (CA INDEX NAME)



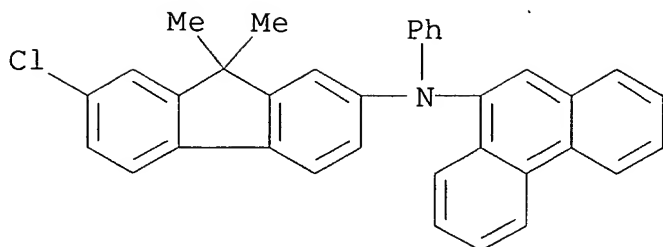
IT 724792-78-3P 724792-79-4P

(manufacture of tertiary aromatic amines for organic electroluminescent

devices showing long service life)

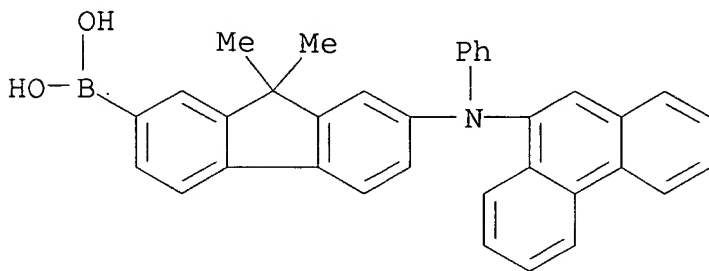
RN 724792-78-3 CAPLUS

CN 9-Phenanthrenamine, N-(7-chloro-9,9-dimethyl-9H-fluoren-2-yl)-N-phenyl- (9CI) (CA INDEX NAME)



RN 724792-79-4 CAPLUS

CN Boronic acid, [9,9-dimethyl-7-(9-phenanthrenylphenylamino)-9H-fluoren-2-yl]- (9CI) (CA INDEX NAME)

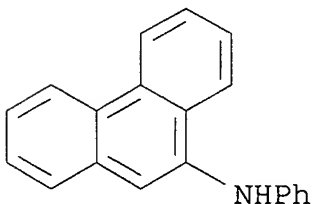


IT 3920-79-4 605630-40-8

(manufacture of tertiary aromatic amines for organic electroluminescent devices showing long service life)

RN 3920-79-4 CAPLUS

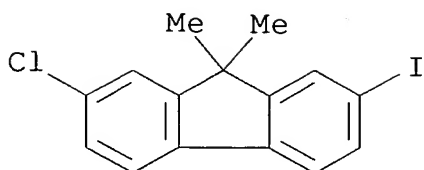
CN 9-Phenanthrenamine, N-phenyl- (9CI) (CA INDEX NAME)



RN 605630-40-8 CAPLUS

CN 9H-Fluorene, 2-chloro-7-iodo-9,9-dimethyl- (9CI) (CA INDEX NAME)





IC ICM C07C211-54  
 ICS C07C211-57; C07C211-58; C07C211-61; C07D209-88; C07D307-91;  
 C07D333-76; C07D409-04; C09K011-06; H05B033-14

CC 73-11 (**Optical**, Electron, and Mass Spectroscopy and  
 Other Related Properties)  
 Section cross-reference(s): 25, 27

IT **Luminescent** substances  
 (electroluminescent; manufacture of tertiary aromatic amines for  
 organic electroluminescent devices showing long service life)

IT 98789-58-3P 724792-68-1P 724792-69-2P 724792-70-5P  
 724792-71-6P 724792-72-7P **724792-73-8P** 724792-80-7P  
 (manufacture of tertiary aromatic amines for organic  
 electroluminescent devices showing long service life)

IT 16911-33-4P 34699-27-9P 724792-75-0P 724792-76-1P  
 724792-77-2P **724792-78-3P 724792-79-4P**  
 (manufacture of tertiary aromatic amines for organic  
 electroluminescent devices showing long service life)

IT 86-74-8, Carbazole 90-30-2, N-Phenyl-1-naphthylamine 90-90-4  
 98-88-4, Benzoyl chloride 603-34-9, N,N-Diphenylaniline  
 1080-32-6, Diethyl benzylphosphonate **3920-79-4**  
 30818-70-3 **605630-40-8** 724792-74-9  
 (manufacture of tertiary aromatic amines for organic  
 electroluminescent devices showing long service life)

L40 ANSWER 12 OF 65 CAPLUS COPYRIGHT 2005 ACS on STN

ACCESSION NUMBER: 2004:569985 CAPLUS

DOCUMENT NUMBER: 141:130990

TITLE: Electroluminescent materials based on metal  
 complexes or organometallic complexes and  
 devices employing the electroluminescent  
 materials

INVENTOR(S): Kathirgamanathan, Poopathy; Kandappu,  
 Vijendra; Ganeshamurugan, Subramaniam;  
 Paramaswara, Gnanamoly

PATENT ASSIGNEE(S): Elam-T Limited, UK

SOURCE: PCT Int. Appl., 59 pp.

CODEN: PIXXD2

DOCUMENT TYPE:

Patent

LANGUAGE:

English

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2004058912	A2	20040715	WO 2003-GB5663	

2003  
1223

WO 2004058912 A3 20041229

W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW

RW: BW, GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG

PRIORITY APPLN. INFO.:

GB 2002-30074

A

2002  
1224

GB 2002-30077

A

2002  
1224

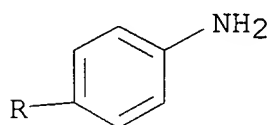
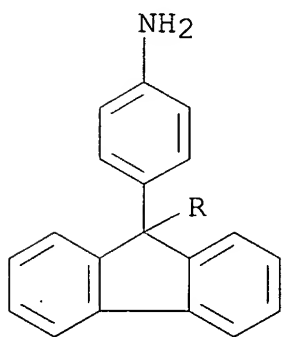
AB Electroluminescent devices are described which comprise a first electrode, a **layer** of a first electroluminescent metal complex or organo metallic complex, a **layer** of a second metal complex or organo metallic complex and a second electrode and in which the band gap of the second electroluminescent metal complex or organo metallic complex is larger than the band gap of the first electroluminescent metal complex or organo metallic complex.

IT 15499-84-0D, derivs., metal complexes 42328-93-8D, derivs., metal complexes 189363-47-1D, derivs., metal complexes 706820-55-5D, derivs., metal complexes 706820-56-6D, derivs., metal complexes 723302-67-8D, derivs., metal complexes (electroluminescent materials based on metal complexes or organometallic complexes and devices employing

electroluminescent materials)

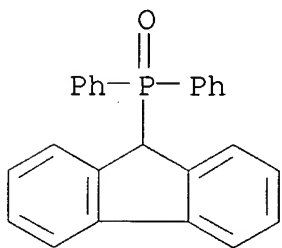
RN 15499-84-0 CAPLUS

CN Benzenamine, 4,4'-(9H-fluoren-9-ylidene)bis- (9CI) (CA INDEX NAME)



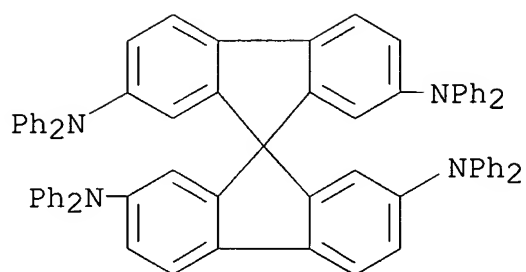
RN 42328-93-8 CAPLUS

CN Phosphine oxide, 9H-fluoren-9-ylidiphenyl- (9CI) (CA INDEX NAME)



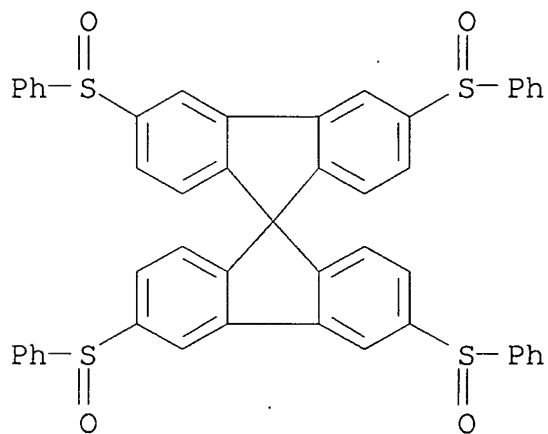
RN 189363-47-1 CAPLUS

CN 9,9'-Spirobi[9H-fluorene]-2,2',7,7'-tetramine,  
N,N,N',N',N'',N'',N''',N''''-octaphenyl- (9CI) (CA INDEX NAME)



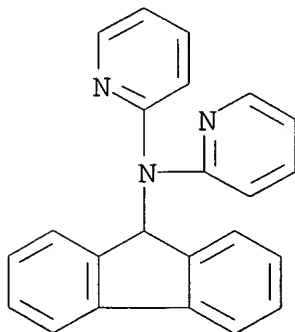
RN 706820-55-5 CAPLUS

CN 9,9'-Spiro[9H-fluorene], 3,3',6,6'-tetrakis(phenylsulfinyl)-  
(9CI) (CA INDEX NAME)

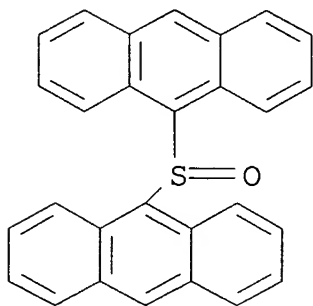


RN 706820-56-6 CAPLUS

CN 2-Pyridinamine, N-9H-fluoren-9-yl-N-2-pyridinyl- (9CI) (CA INDEX  
NAME)



RN 723302-67-8 CAPLUS  
 CN Anthracene, 9,9'-sulfinylbis- (9CI) (CA INDEX NAME)



IC ICM C09K011-00  
 CC 73-5 (**Optical**, Electron, and Mass Spectroscopy and Other Related Properties)  
 Section cross-reference(s): 76, 78  
 IT **Luminescent** substances  
 (electroluminescent; electroluminescent materials based on metal complexes or organometallic complexes and devices employing electroluminescent materials)  
 IT 60-00-4D, EDTA, metal complexes 66-71-7D, 1,10-Phenanthroline, derivs., metal complexes 67-43-6D, metal complexes 71-47-6D, Formate, derivs., metal complexes 86-74-8D, 9H-Carbazole, derivs., metal complexes 87-01-4D, metal complexes 92-83-1D, 9H-Xanthene, derivs., metal complexes 101-60-0D, Porphyrin, derivs., metal complexes 109-97-7D, Pyrrole, metal complexes 110-00-9D, Furan, metal complexes 110-02-1D, Thiophene, metal complexes 288-05-1D, Selenophene, metal complexes 366-18-7D, 2,2'-Bipyridine, derivs., metal complexes 574-93-6D, Phthalocyanine, derivs., metal complexes 869-52-3D, metal complexes 945-51-7D, derivs., metal complexes 1013-23-6D, derivs., metal complexes 1148-79-4D,  $\alpha, \alpha', \alpha''$ -Tripyridyl, metal complexes 1662-01-7D, derivs., metal complexes 2085-33-8, Aluminum tris(8-hydroxyquinolinato) 2085-33-8D, Aluminum tris(8-hydroxyquinolinato), compds. 2325-27-1D, derivs., metal complexes 2550-73-4D, derivs., metal complexes 3878-45-3D, Triphenylphosphine sulfide, derivs., metal complexes 5521-31-3D, derivs., metal complexes 7664-41-7D, Ammonia, derivs., metal complexes 13285-00-2D, metal complexes 13291-61-7D, DCTA, metal complexes 13930-88-6D, compds. 15460-68-1D, derivs., metal complexes **15499-84-0D**, derivs., metal complexes 16523-64-1D, metal complexes 16582-16-4D, derivs., metal complexes 17904-71-1 18357-23-8D, metal complexes 19263-00-4D, derivs., metal complexes 19437-26-4D, derivs., metal complexes 25809-66-9D, derivs.,

metal complexes 26201-32-1D, compds. 33134-15-5 33155-90-7D,  
Benzo[h]quinolin-10-ol, metal complexes 42328-93-8D,  
derivs., metal complexes 46796-03-6D, derivs., metal complexes  
53012-61-6D, derivs., metal complexes 54888-34-5D, derivs.,  
metal complexes 58328-31-7D, CBP, derivs., metal complexes  
80276-03-5D, 9H-Indeno[2,1-b]pyridin-9-ol, metal complexes  
98837-98-0D, metal complexes 105389-36-4D, derivs., metal  
complexes 123847-85-8, NPB 123847-85-8D, NPB, derivs., metal  
complexes 133259-29-7D, derivs., metal complexes 142289-08-5D,  
derivs., metal complexes 189363-47-1D, derivs., metal  
complexes 203642-12-0 704203-99-6D, derivs., metal complexes  
706820-54-4D, Benzo[2,1-b:3,4-b']bisphosphorin, derivs., metal  
complexes 706820-55-5D, derivs., metal complexes  
706820-56-6D, derivs., metal complexes 706820-58-8D,  
derivs., metal complexes 706820-61-3D, derivs., metal complexes  
723302-60-1D, derivs., metal complexes 723302-61-2D, derivs.,  
metal complexes 723302-62-3D, 5H-Indeno[1,2-b]pyridin-9-ol,  
metal complexes 723302-63-4D, Benzo[f]quinoxalin-10-ol, metal  
complexes 723302-64-5D, derivs., metal complexes 723302-65-6D,  
derivs., metal complexes 723302-67-8D, derivs., metal  
complexes 723302-68-9D, derivs., metal complexes 723312-01-4D,  
derivs., metal complexes

(electroluminescent materials based on metal complexes or  
organometallic complexes and devices employing  
electroluminescent materials)

IT 65181-78-4, TPD  
(hole-transporting layer; electroluminescent  
materials based on metal complexes or organometallic complexes  
and devices employing electroluminescent materials)

L40 ANSWER 13 OF 65 CAPLUS COPYRIGHT 2005 ACS on STN

ACCESSION NUMBER: 2004:568210 CAPLUS

DOCUMENT NUMBER: 141:131023

TITLE: Organic electroluminescent devices employing  
blue-emitting dopants based on amine  
derivatives of pyrene

INVENTOR(S): Seo, Jeong Dae; Lee, Kyung Hoon; Kim, Hee  
Jung; Park, Chun Gun; Oh, Hyoung Yun

PATENT ASSIGNEE(S): Lg Electronics Inc., S. Korea

SOURCE: Eur. Pat. Appl., 43 pp.

CODEN: EPXXDW

DOCUMENT TYPE: Patent

LANGUAGE: English

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
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EP 1437395

A2 20040714 EP 2003-29661

2003

1223

R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE,  
MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR, BG, CZ,  
EE, HU, SK

US 2004137270

A1 20040715 US 2003-743778

2003

1224

JP 2004204238

A2 20040722 JP 2003-428297

2003

1224

PRIORITY APPLN. INFO.:

KR 2002-83279

A

2002

1224

KR 2003-20465

A

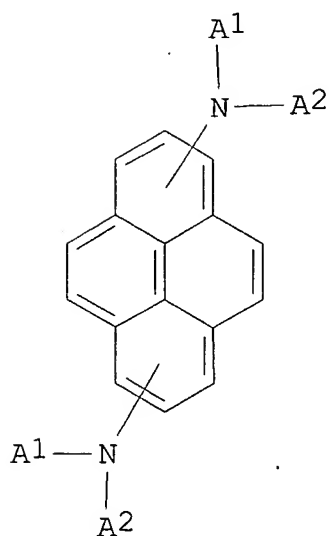
2003

0401

OTHER SOURCE(S):

MARPAT 141:131023

GI



I

AB Organic electroluminescent devices are described which comprise a substrate; a first and second electrodes formed on the substrate;

an emitting **layer** formed between the first electrode and the second electrode, the emitting **layer** having a plurality of materials one of which being a blue-emitting dopant with general formula (I), where at least one of A1 and A2 is selected from a substituted or non-substituted aromatic group, a heterocyclic group, an aliphatic group and hydrogen. The materials forming the emitting **layer** together with the material of I may have a chemical formula B1-X-B2 where X is selected from a group consisting of naphthalene, anthracene, phenanthrene, pyrene, perylene, and quinoline and at least 1 of the B1 and B2 is selected from a group consisting of aryl, alkylaryl, alkoxyaryl, arylaminoaryl and alkylaminoaryl.

IT 76656-51-4 143141-30-4 163969-53-7

663954-33-4 668019-96-3 722498-76-2

722498-77-3 722498-78-4 722498-79-5

722498-80-8 722498-81-9 722498-82-0

722498-83-1 722498-84-2 722498-85-3

722498-86-4 722498-87-5 722498-88-6

722498-89-7 722498-90-0 722498-91-1

722498-92-2 722498-93-3 722498-94-4

722498-95-5 722498-97-7 722498-98-8

722498-99-9 722499-00-5 722499-01-6

722499-02-7 722499-03-8 722499-04-9

722499-05-0 722499-06-1 722499-07-2

722499-08-3 722499-09-4 722499-10-7

722499-11-8 722499-12-9 722499-13-0

722499-14-1 722499-15-2 722499-16-3

722499-17-4 722499-18-5 722499-19-6

722499-20-9 722499-21-0 722499-22-1

722499-23-2 722499-24-3 722499-25-4

722499-26-5 722499-27-6 722499-28-7

722499-29-8 722499-30-1 722499-31-2

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722499-44-7 722499-45-8 722499-46-9

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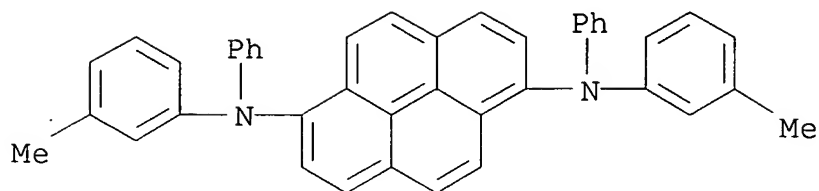
722499-53-8 722499-54-9

(blue-emitting dopant; organic electroluminescent devices employing blue-emitting dopants based on amine derivs. of pyrene)

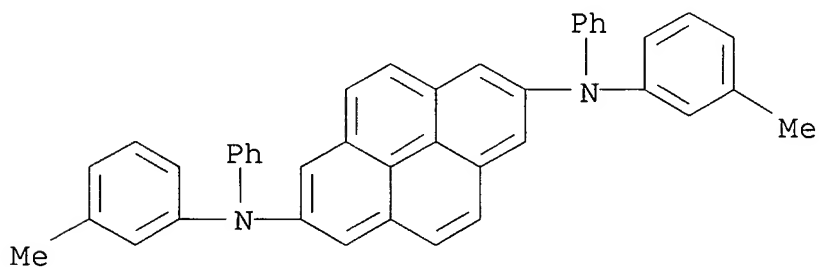
RN 76656-51-4 CAPLUS

CN 1,6-Pyrenediamine, N,N'-bis(3-methylphenyl)-N,N'-diphenyl- (9CI)  
(CA INDEX NAME)

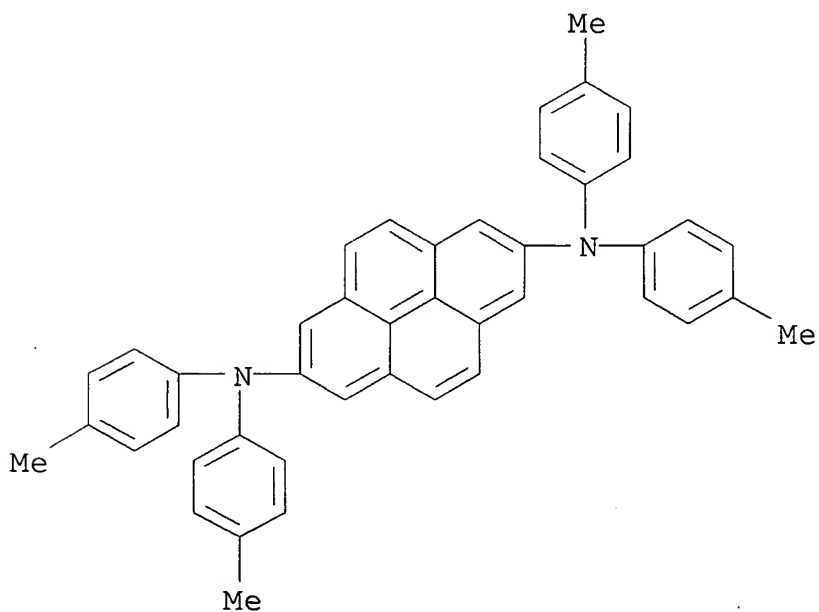




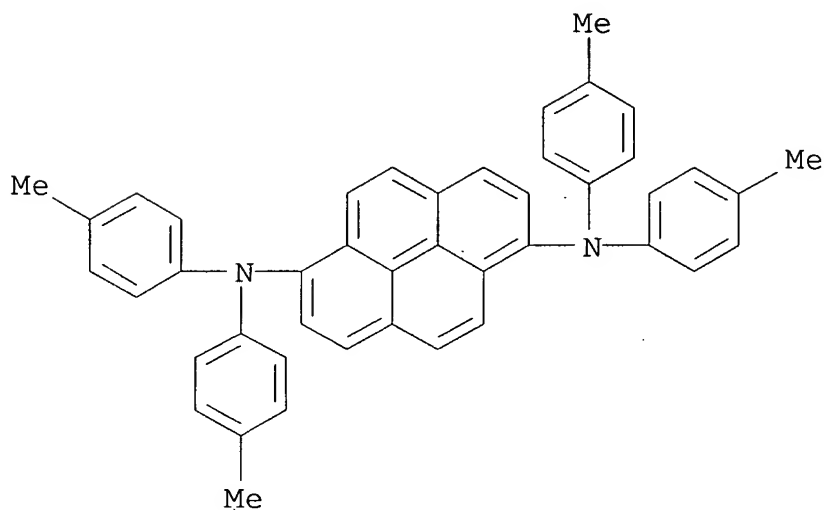
RN 143141-30-4 CAPLUS

CN 2,7-Pyrenediamine, N,N'-bis(3-methylphenyl)-N,N'-diphenyl- (9CI)  
(CA INDEX NAME)

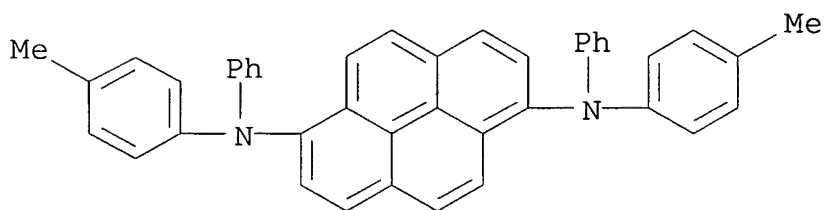
RN 163969-53-7 CAPLUS

CN 2,7-Pyrenediamine, N,N,N',N'-tetrakis(4-methylphenyl)- (9CI) (CA  
INDEX NAME)

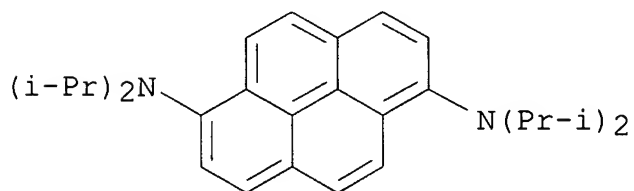
RN 663954-33-4 CAPLUS  
 CN 1,6-Pyrenediamine, N,N,N',N'-tetrakis(4-methylphenyl)- (9CI) (CA INDEX NAME)



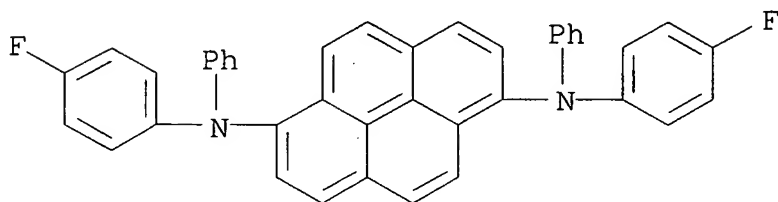
RN 668019-96-3 CAPLUS  
 CN 1,6-Pyrenediamine, N,N'-bis(4-methylphenyl)-N,N'-diphenyl- (9CI) (CA INDEX NAME)



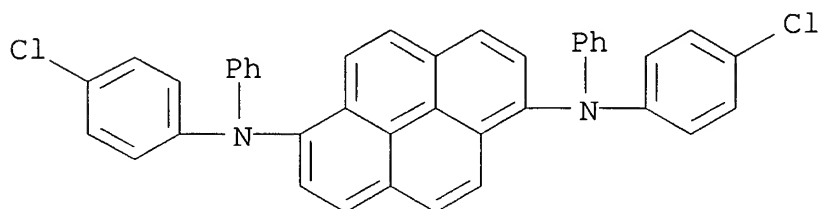
RN 722498-76-2 CAPLUS  
 CN 1,6-Pyrenediamine, N,N,N',N'-tetrakis(1-methylethyl)- (9CI) (CA INDEX NAME)



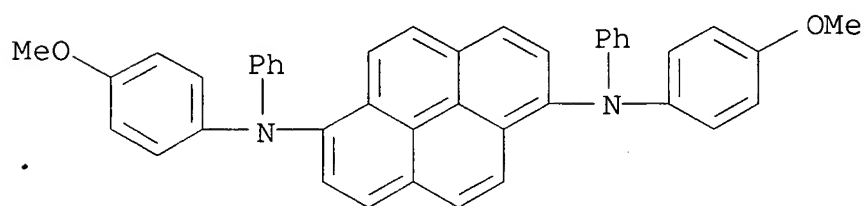
RN 722498-77-3 CAPLUS  
CN 1,6-Pyrenediamine, N,N'-bis(4-fluorophenyl)-N,N'-diphenyl- (9CI)  
(CA INDEX NAME)



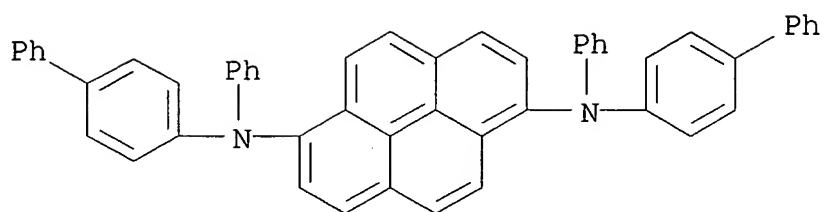
RN 722498-78-4 CAPLUS  
CN 1,6-Pyrenediamine, N,N'-bis(4-chlorophenyl)-N,N'-diphenyl- (9CI)  
(CA INDEX NAME)



RN 722498-79-5 CAPLUS  
CN 1,6-Pyrenediamine, N,N'-bis(4-methoxyphenyl)-N,N'-diphenyl- (9CI)  
(CA INDEX NAME)

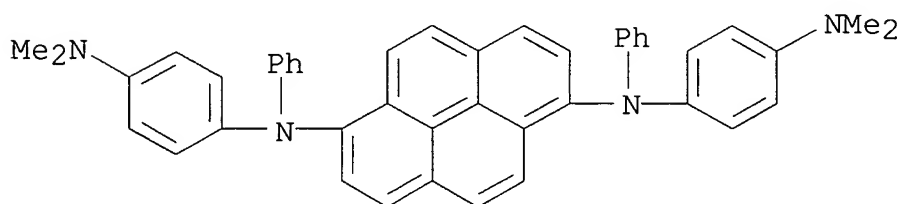


RN 722498-80-8 CAPLUS  
CN 1,6-Pyrenediamine, N,N'-bis[1,1'-biphenyl]-4-yl-N,N'-diphenyl-  
(9CI) (CA INDEX NAME)



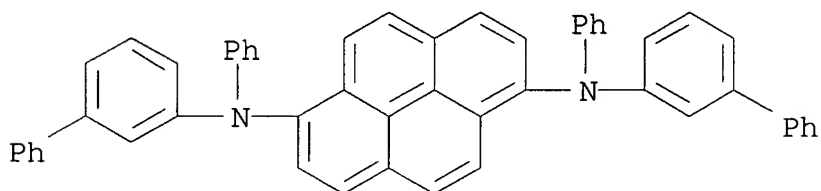
RN 722498-81-9 CAPLUS

CN 1,6-Pyrenedi-amine, N,N'-bis[4-(dimethylamino)phenyl]-N,N'-diphenyl-  
(9CI) (CA INDEX NAME)



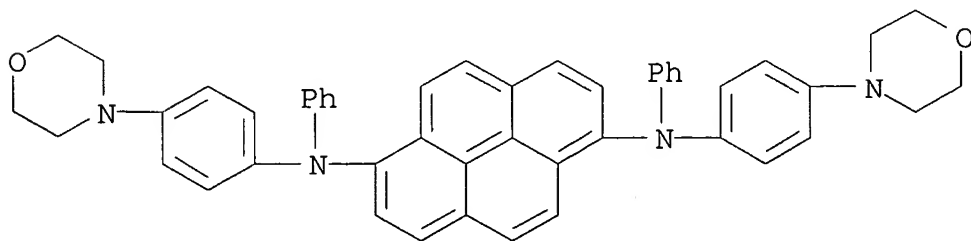
RN 722498-82-0 CAPLUS

CN 1,6-Pyrenedi-amine, N,N'-bis[1,1'-biphenyl]-3-yl-N,N'-diphenyl-  
(9CI) (CA INDEX NAME)



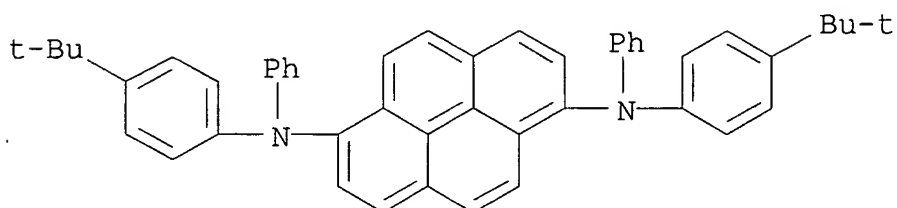
RN 722498-83-1 CAPLUS

CN 1,6-Pyrenedi-amine, N,N'-bis[4-(4-morpholinyl)phenyl]-N,N'-diphenyl-  
(9CI) (CA INDEX NAME)



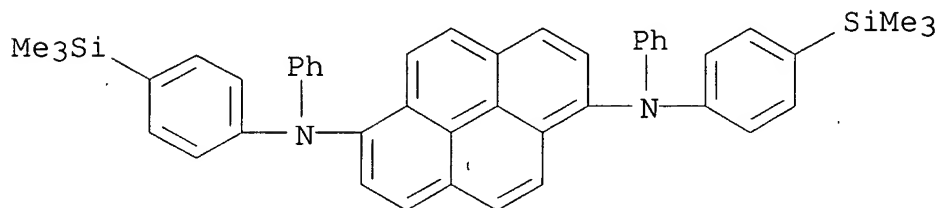
RN 722498-84-2 CAPLUS

CN 1,6-Pyrenediamine, N,N'-bis[4-(1,1-dimethylethyl)phenyl]-N,N'-diphenyl- (9CI) (CA INDEX NAME)



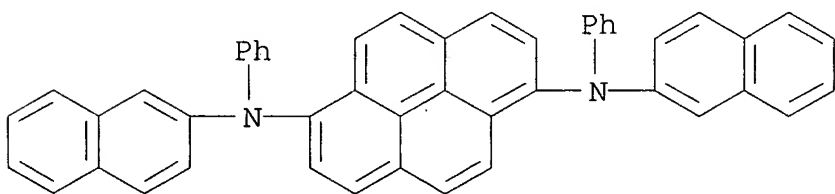
RN 722498-85-3 CAPLUS

CN 1,6-Pyrenediamine, N,N'-diphenyl-N,N'-bis[4-(trimethylsilyl)phenyl]- (9CI) (CA INDEX NAME)



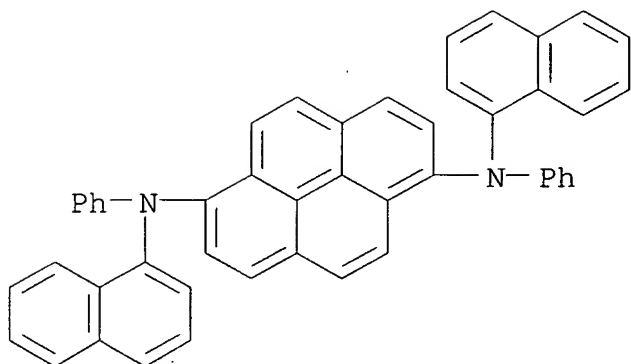
RN 722498-86-4 CAPLUS

CN 1,6-Pyrenediamine, N,N'-di-2-naphthalenyl-N,N'-diphenyl- (9CI) (CA INDEX NAME)



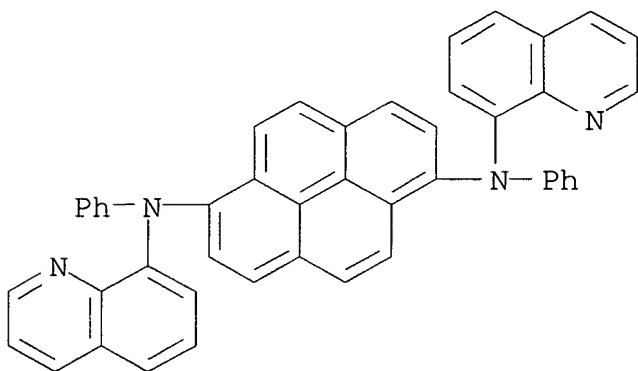
RN 722498-87-5 CAPLUS

CN 1,6-Pyrenediamine, N,N'-di-1-naphthalenyl-N,N'-diphenyl- (9CI) (CA INDEX NAME)



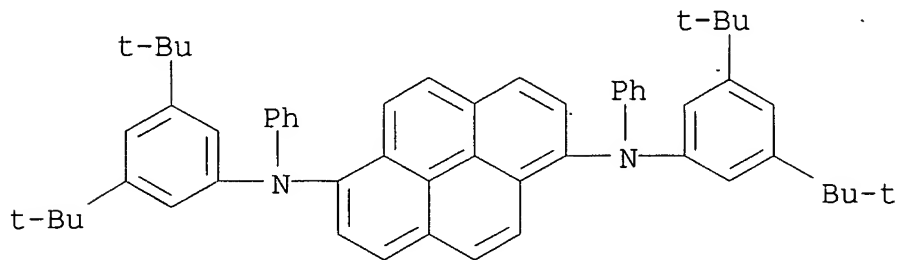
RN 722498-88-6 CAPLUS

CN 1,6-Pyrenediamine, N,N'-diphenyl-N,N'-di-8-quinolinyl- (9CI) (CA INDEX NAME)



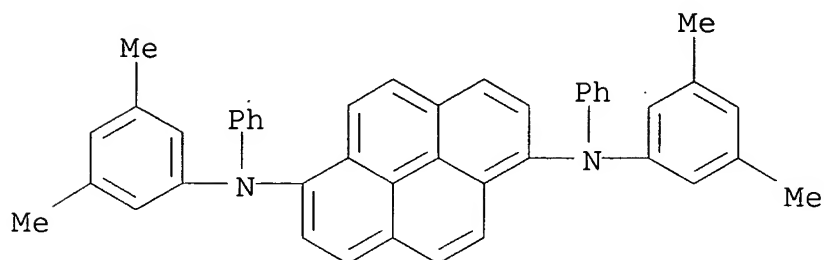
RN 722498-89-7 CAPLUS

CN 1,6-Pyrenediamine, N,N'-bis[3,5-bis(1,1-dimethylethyl)phenyl]-N,N'-diphenyl- (9CI) (CA INDEX NAME)



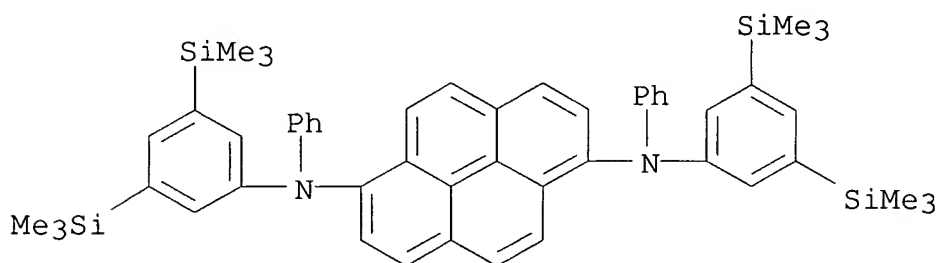
RN 722498-90-0 CAPLUS

CN 1,6-Pyrenediamine, N,N'-bis(3,5-dimethylphenyl)-N,N'-diphenyl- (9CI) (CA INDEX NAME)



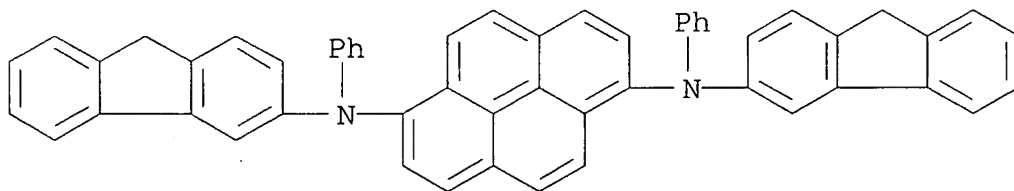
RN 722498-91-1 CAPLUS

CN 1,6-Pyrenediamine, N,N'-bis[3,5-bis(trimethylsilyl)phenyl]-N,N'-diphenyl- (9CI) (CA INDEX NAME)



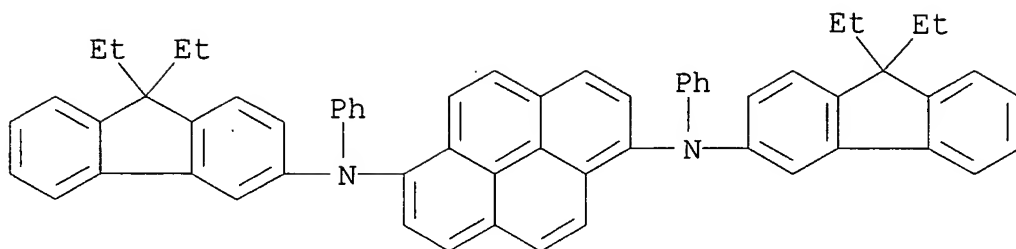
RN 722498-92-2 CAPLUS

CN 1,6-Pyrenediamine, N,N'-di-9H-fluoren-3-yl-N,N'-diphenyl- (9CI) (CA INDEX NAME)



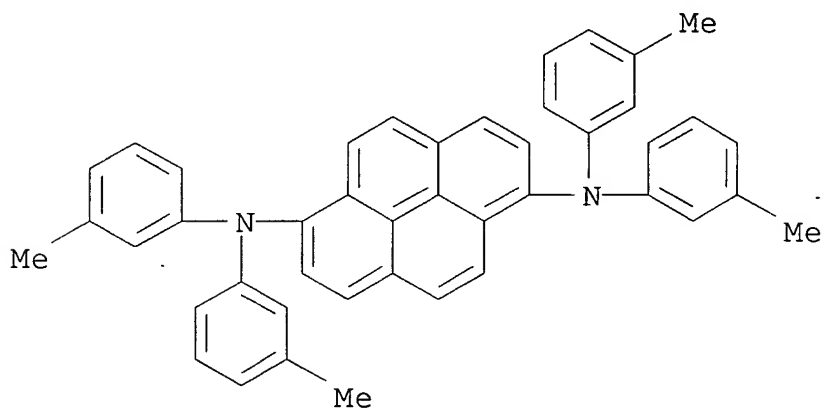
RN 722498-93-3 CAPLUS

CN 1,6-Pyrenediamine, N,N'-bis(9,9-diethyl-9H-fluoren-3-yl)-N,N'-diphenyl- (9CI) (CA INDEX NAME)



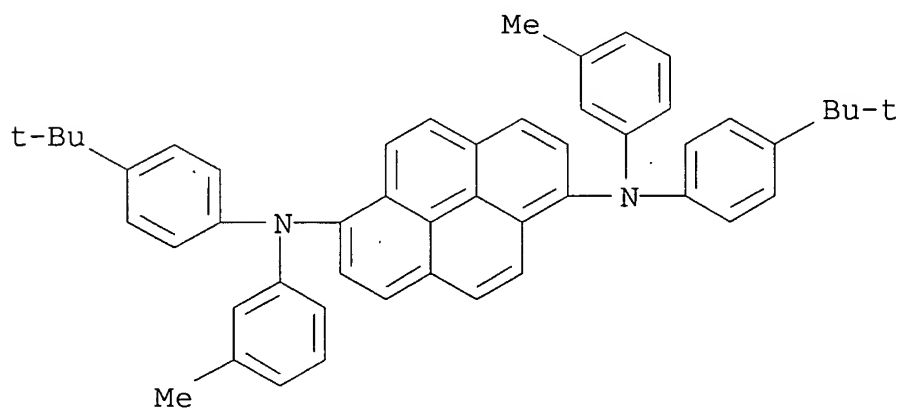
RN 722498-94-4 CAPLUS

CN 1,6-Pyrenediamine, N,N,N',N'-tetrakis(3-methylphenyl)- (9CI) (CA INDEX NAME)



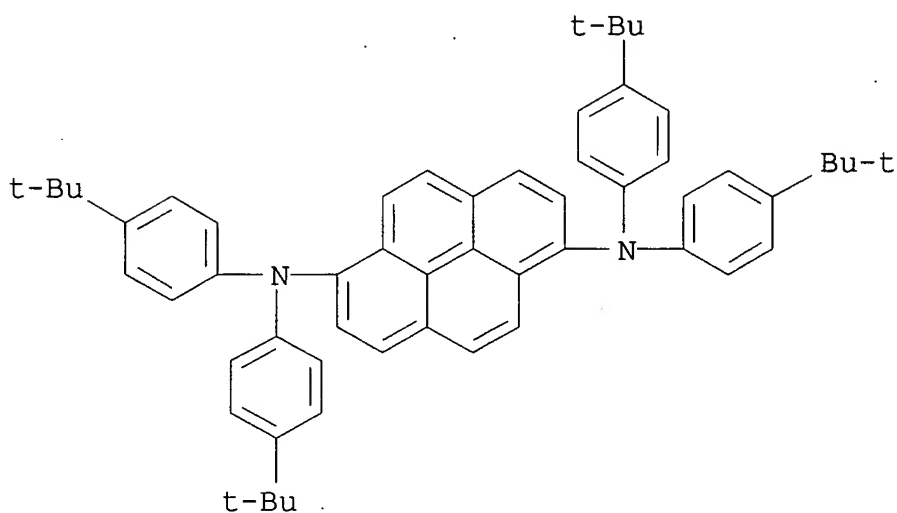
RN 722498-95-5 CAPLUS

CN 1,6-Pyrenediamine, N,N'-bis[4-(1,1-dimethylethyl)phenyl]-N,N'-bis(3-methylphenyl)- (9CI) (CA INDEX NAME)

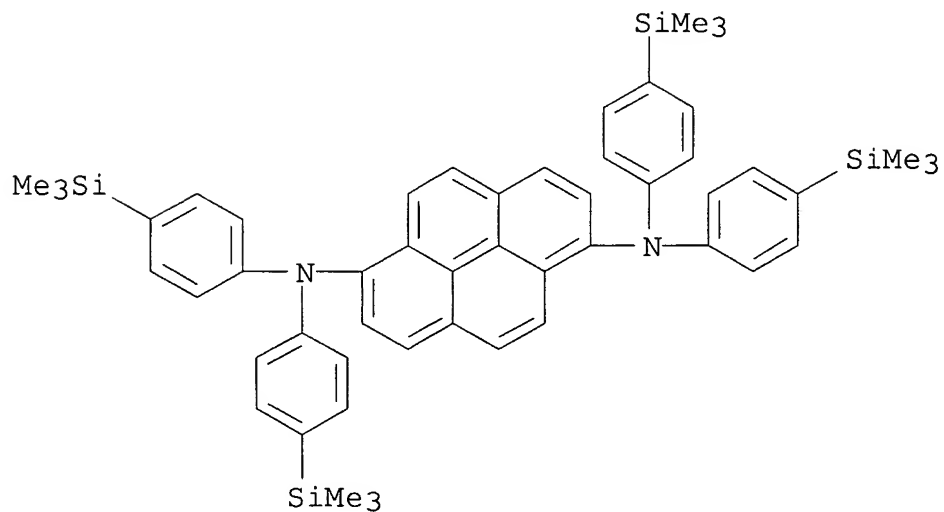




RN 722498-97-7 CAPLUS

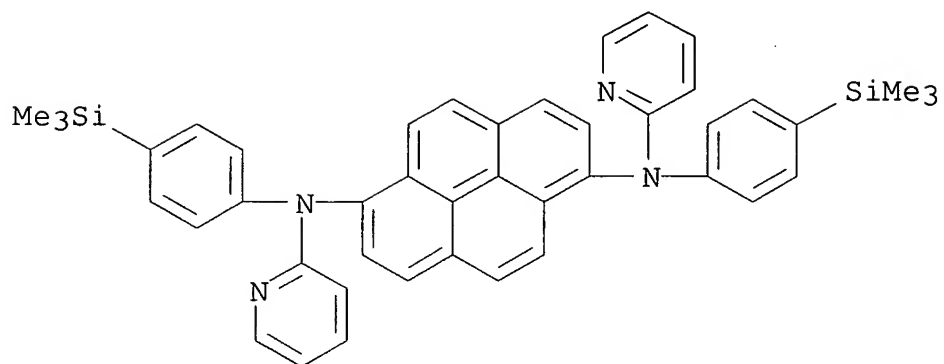
CN 1,6-Pyrenediamine, N,N,N',N'-tetrakis[4-(1,1-dimethylethyl)phenyl]-  
(9CI) (CA INDEX NAME)

RN 722498-98-8 CAPLUS

CN 1,6-Pyrenediamine, N,N,N',N'-tetrakis[4-(trimethylsilyl)phenyl]-  
(9CI) (CA INDEX NAME)

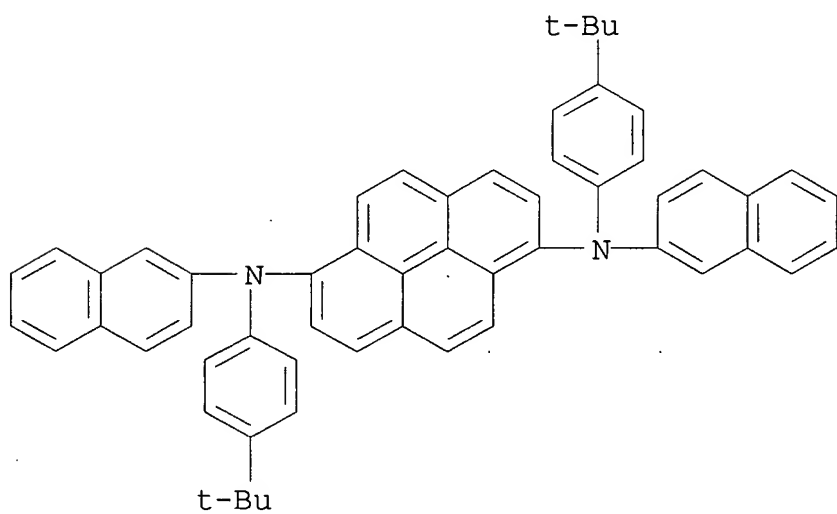
RN 722498-99-9 CAPLUS

CN 1,6-Pyrenediamine, N,N'-di-2-pyridinyl-N,N'-bis[4-(trimethylsilyl)phenyl]- (9CI) (CA INDEX NAME)



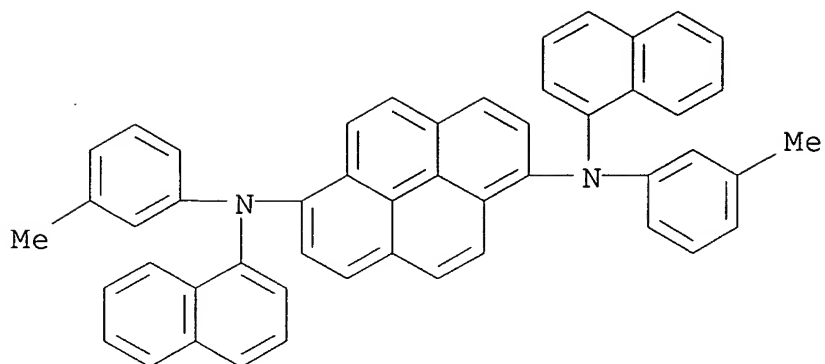
RN 722499-00-5 CAPLUS

CN 1,6-Pyrenediimine, N,N'-bis[4-(1,1-dimethylethyl)phenyl]-N,N'-di-2-naphthalenyl- (9CI) (CA INDEX NAME)

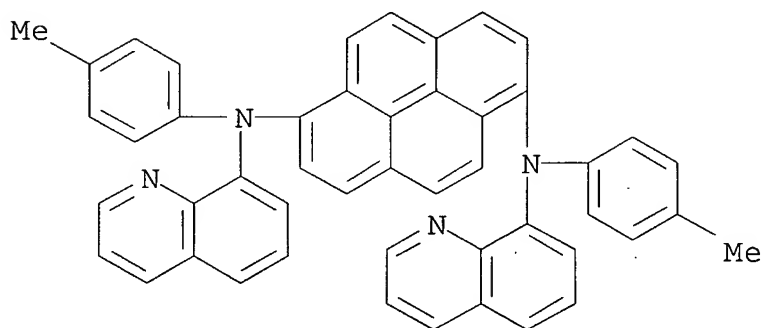


RN 722499-01-6 CAPLUS

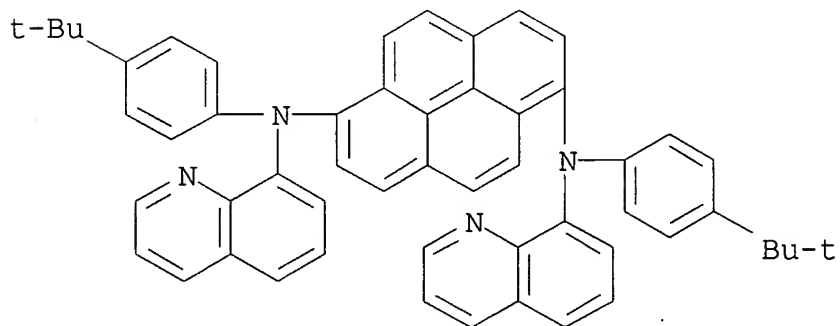
CN 1,6-Pyrenediimine, N,N'-bis(3-methylphenyl)-N,N'-di-1-naphthalenyl- (9CI) (CA INDEX NAME)



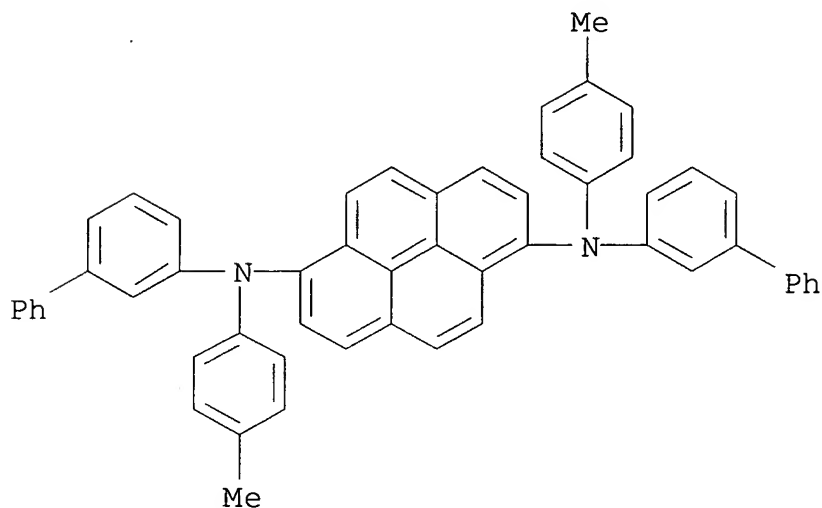
RN 722499-02-7 CAPLUS

CN 1,6-Pyrenedi-amine, N,N'-bis(4-methylphenyl)-N,N'-di-8-quinolinyl-  
(9CI) (CA INDEX NAME)

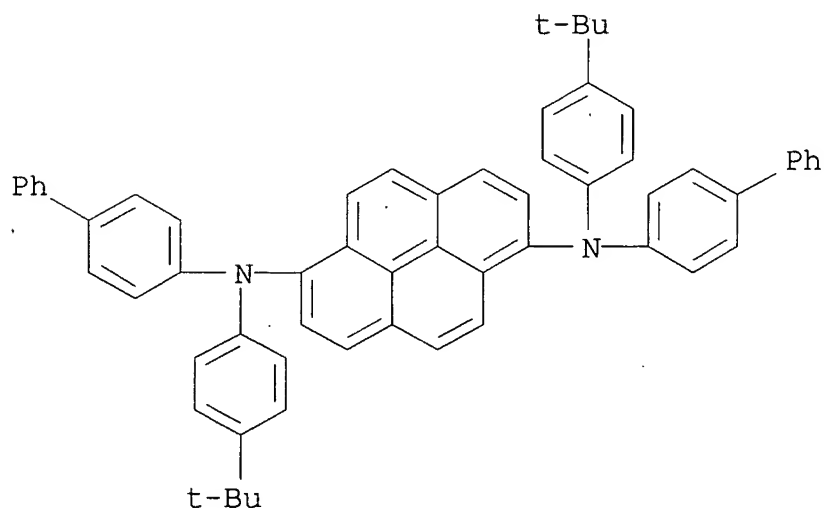
RN 722499-03-8 CAPLUS

CN 1,6-Pyrenedi-amine, N,N'-bis[4-(1,1-dimethylethyl)phenyl]-N,N'-di-8-  
quinolinyl- (9CI) (CA INDEX NAME)

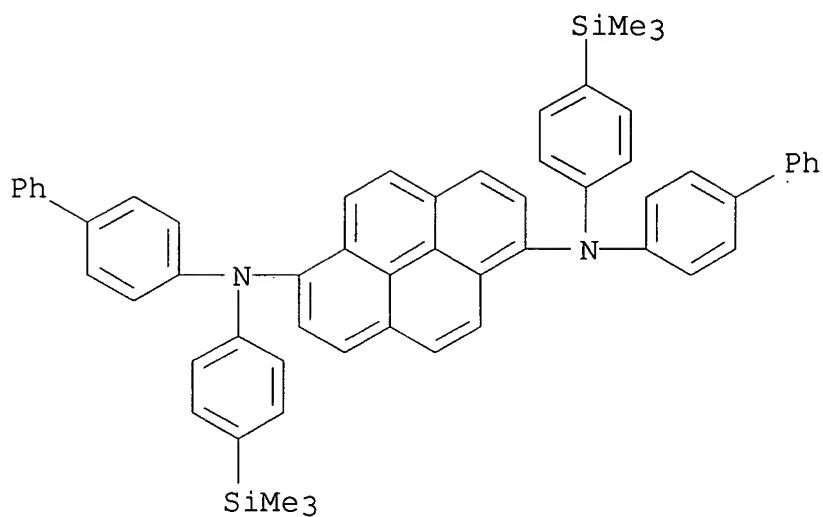
RN 722499-04-9 CAPLUS  
CN 1,6-Pyrenediamine, N,N'-bis[1,1'-biphenyl]-3-yl-N,N'-bis(4-methylphenyl)- (9CI) (CA INDEX NAME)



RN 722499-05-0 CAPLUS  
CN 1,6-Pyrenediamine, N,N'-bis[1,1'-biphenyl]-4-yl-N,N'-bis[4-(1,1-dimethylethyl)phenyl]- (9CI) (CA INDEX NAME)

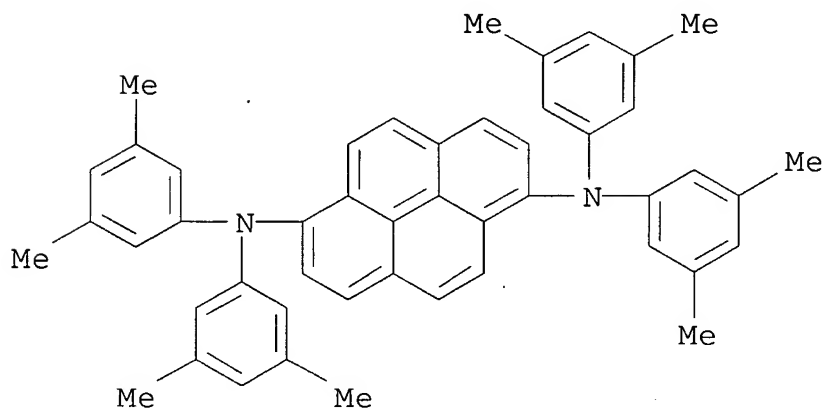


RN 722499-06-1 CAPLUS  
CN 1,6-Pyrenediamine, N,N'-bis[1,1'-biphenyl]-4-yl-N,N'-bis[4-(trimethylsilyl)phenyl]- (9CI) (CA INDEX NAME)



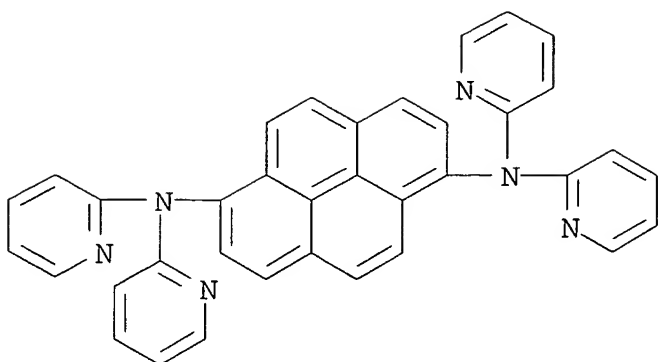
RN 722499-07-2 CAPLUS

CN 1,6-Pyrenediamine, N,N,N',N'-tetrakis(3,5-dimethylphenyl)- (9CI)  
(CA INDEX NAME)



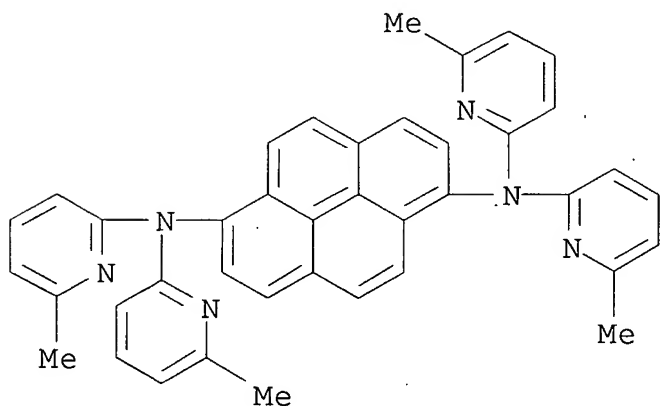
RN 722499-08-3 CAPLUS

CN 1,6-Pyrenediamine, N,N,N',N'-tetra-2-pyridinyl- (9CI) (CA INDEX  
NAME)



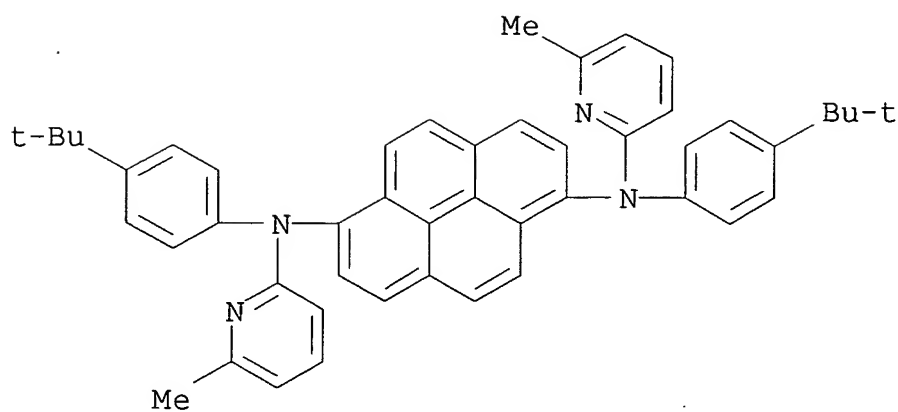
RN 722499-09-4 CAPLUS

CN 1,6-Pyrenediamine, N,N,N',N'-tetrakis(6-methyl-2-pyridinyl)- (9CI)  
(CA INDEX NAME)



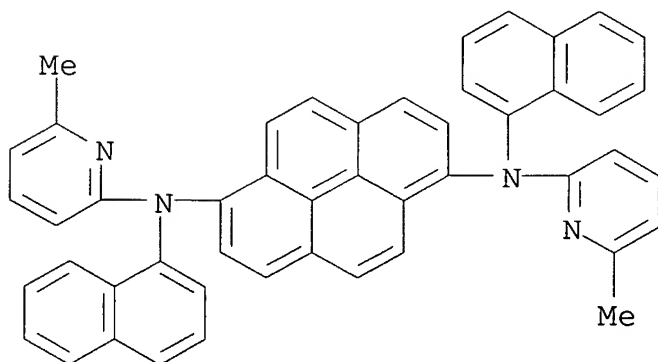
RN 722499-10-7 CAPLUS

CN 1,6-Pyrenediamine, N,N'-bis[4-(1,1-dimethylethyl)phenyl]-N,N'-bis(6-methyl-2-pyridinyl)- (9CI) (CA INDEX NAME)



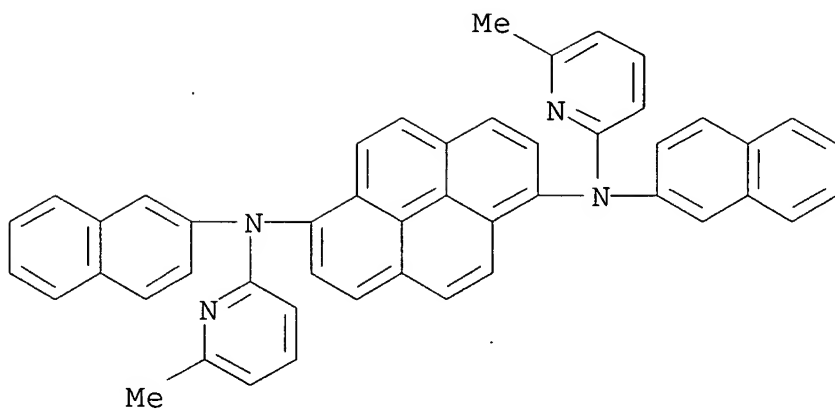
RN 722499-11-8 CAPLUS

CN 1,6-Pyrenedi-amine, N,N'-bis(6-methyl-2-pyridinyl)-N,N'-di-1-naphthalenyl- (9CI) (CA INDEX NAME)



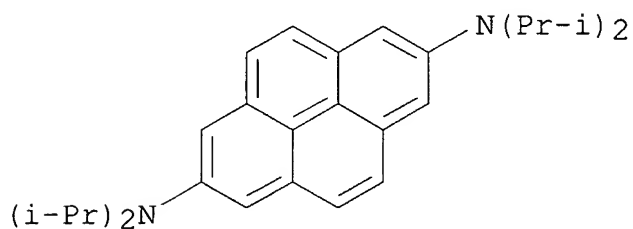
RN 722499-12-9 CAPLUS

CN 1,6-Pyrenedi-amine, N,N'-bis(6-methyl-2-pyridinyl)-N,N'-di-2-naphthalenyl- (9CI) (CA INDEX NAME)



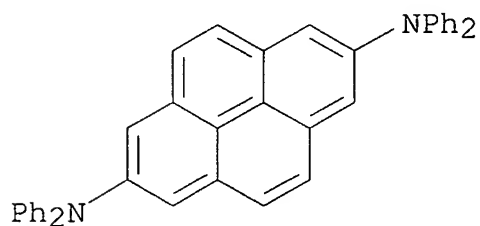
RN 722499-13-0 CAPLUS

CN 2,7-Pyrenediamine, N,N,N',N'-tetrakis(1-methylethyl)- (9CI) (CA INDEX NAME)



RN 722499-14-1 CAPLUS

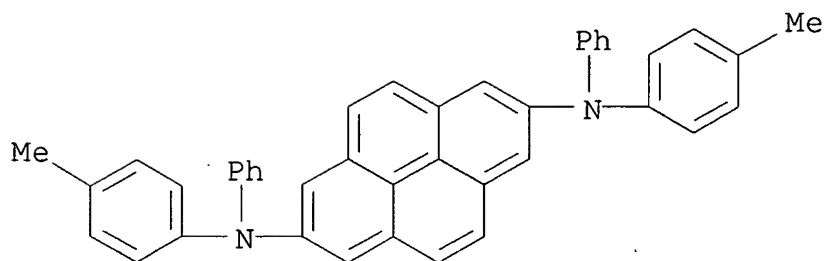
CN 2,7-Pyrenediamine, N,N,N',N'-tetraphenyl- (9CI) (CA INDEX NAME)



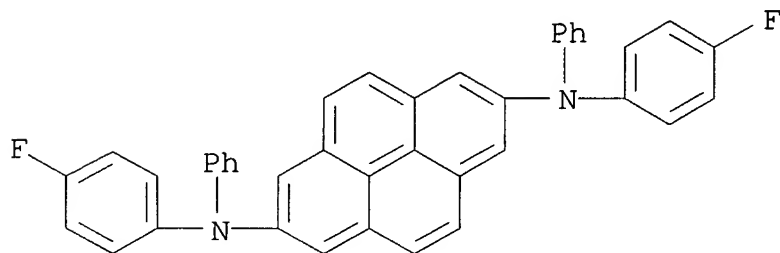
RN 722499-15-2 CAPLUS

CN 2,7-Pyrenediamine, N,N'-bis(4-methylphenyl)-N,N'-diphenyl- (9CI) (CA INDEX NAME)

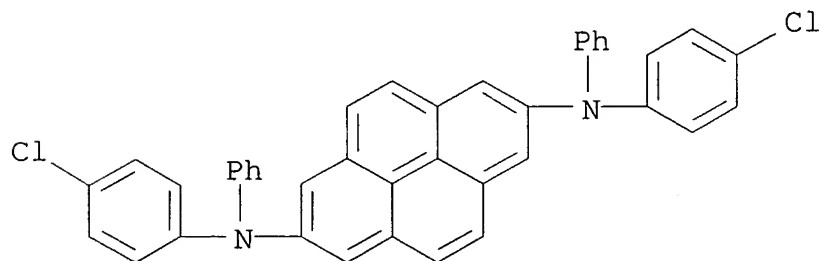




RN 722499-16-3 CAPLUS

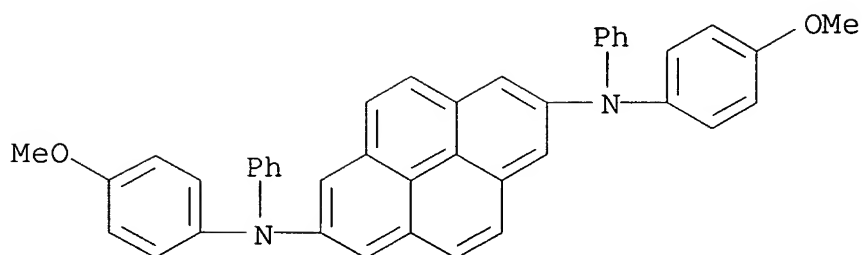
CN 2,7-Pyrenediamine, N,N'-bis(4-fluorophenyl)-N,N'-diphenyl- (9CI)  
(CA INDEX NAME)

RN 722499-17-4 CAPLUS

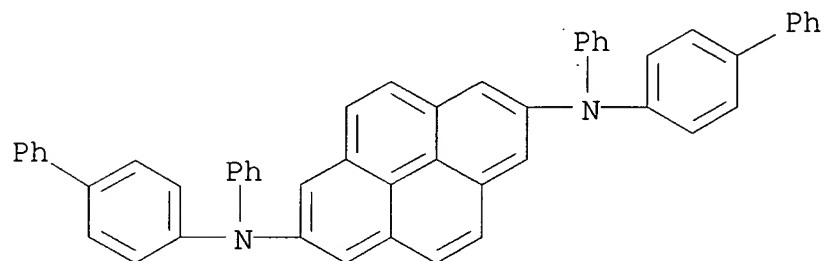
CN 2,7-Pyrenediamine, N,N'-bis(4-chlorophenyl)-N,N'-diphenyl- (9CI)  
(CA INDEX NAME)

RN 722499-18-5 CAPLUS

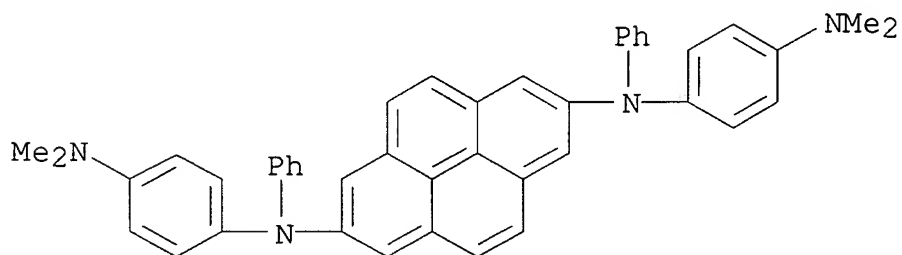
CN 2,7-Pyrenediamine, N,N'-bis(4-methoxyphenyl)-N,N'-diphenyl- (9CI)  
(CA INDEX NAME)



RN 722499-19-6 CAPLUS

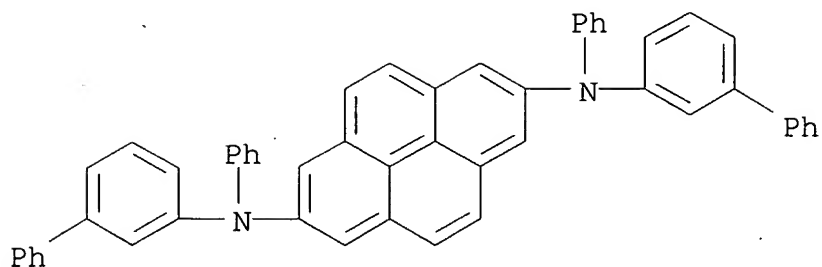
CN 2,7-Pyrenediamine, N,N'-bis[1,1'-biphenyl]-4-yl-N,N'-diphenyl-  
(9CI) (CA INDEX NAME)

RN 722499-20-9 CAPLUS

CN 2,7-Pyrenediamine, N,N'-bis[4-(dimethylamino)phenyl]-N,N'-diphenyl-  
(9CI) (CA INDEX NAME)

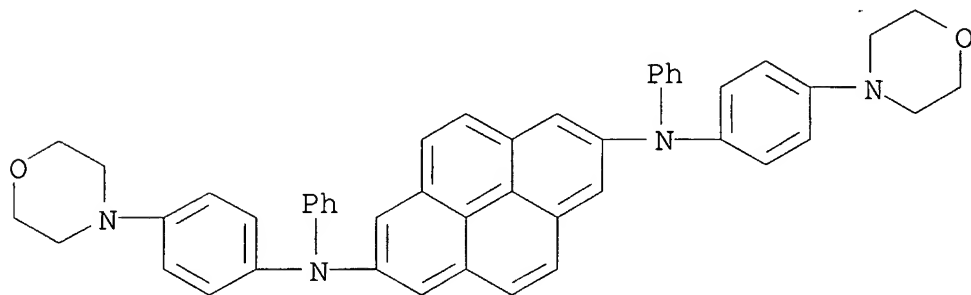
RN 722499-21-0 CAPLUS

CN 2,7-Pyrenediamine, N,N'-bis[1,1'-biphenyl]-3-yl-N,N'-diphenyl-  
(9CI) (CA INDEX NAME)



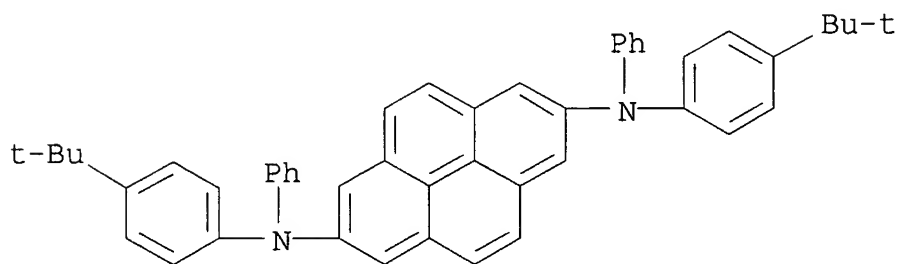
RN 722499-22-1 CAPLUS

CN 2,7-Pyrenediamine, N,N'-bis[4-(4-morpholinyl)phenyl]-N,N'-diphenyl-  
(9CI) (CA INDEX NAME)



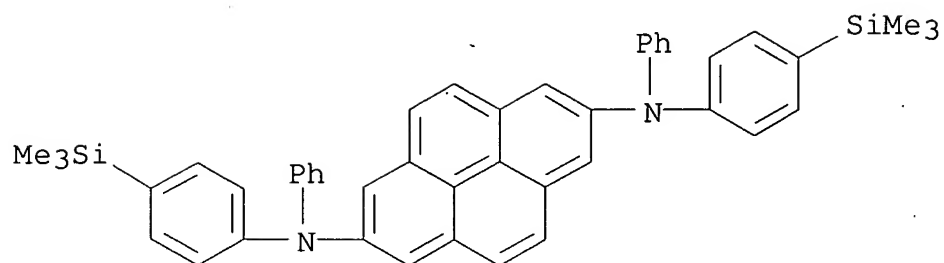
RN 722499-23-2 CAPLUS

CN 2,7-Pyrenediamine, N,N'-bis[4-(1,1-dimethylethyl)phenyl]-N,N'-  
diphenyl- (9CI) (CA INDEX NAME)



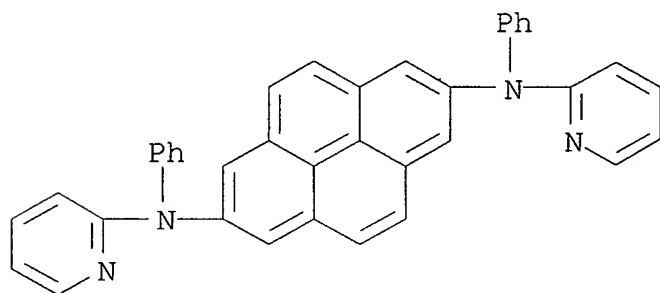
RN 722499-24-3 CAPLUS

CN 2,7-Pyrenediamine, N,N'-diphenyl-N,N'-bis[4-  
(trimethylsilyl)phenyl]- (9CI) (CA INDEX NAME)



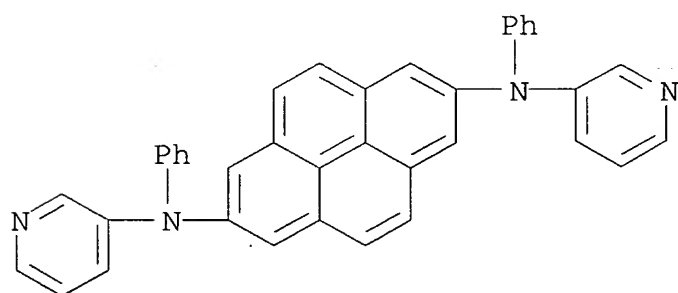
RN 722499-25-4 CAPLUS

CN 2,7-Pyrenediamine, N,N'-diphenyl-N,N'-di-2-pyridinyl- (9CI) (CA INDEX NAME)



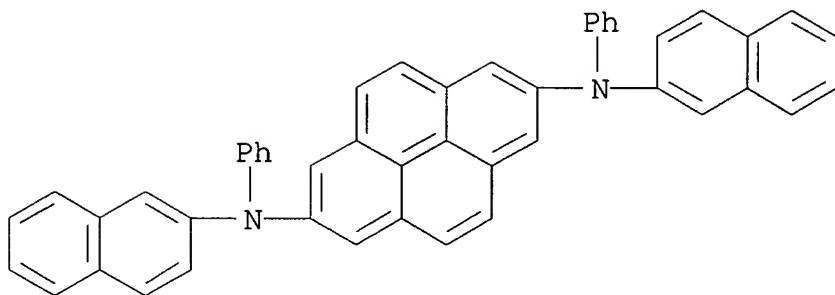
RN 722499-26-5 CAPLUS

CN 2,7-Pyrenediamine, N,N'-diphenyl-N,N'-di-3-pyridinyl- (9CI) (CA INDEX NAME)



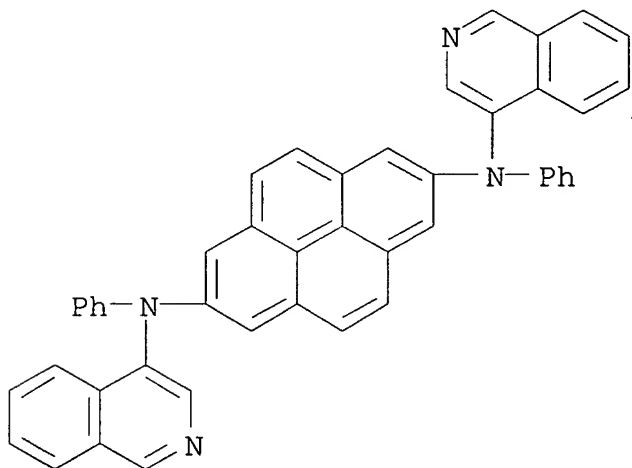
RN 722499-27-6 CAPLUS

CN 2,7-Pyrenediamine, N,N'-di-2-naphthalenyl-N,N'-diphenyl- (9CI) (CA INDEX NAME)



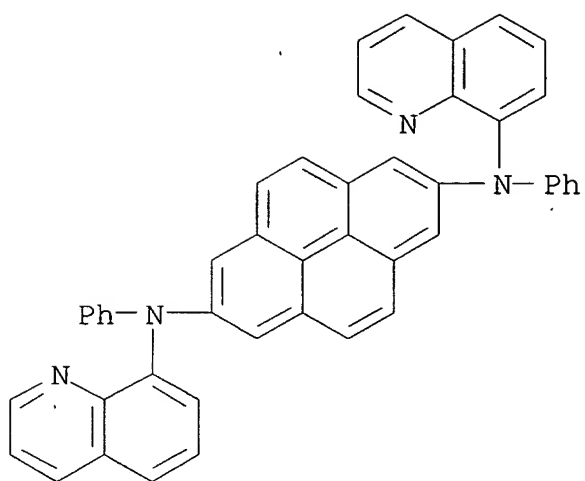
RN 722499-28-7 CAPLUS

CN 2,7-Pyrenediamine, N,N'-di-4-isoquinolinyl-N,N'-diphenyl- (9CI)  
(CA INDEX NAME)



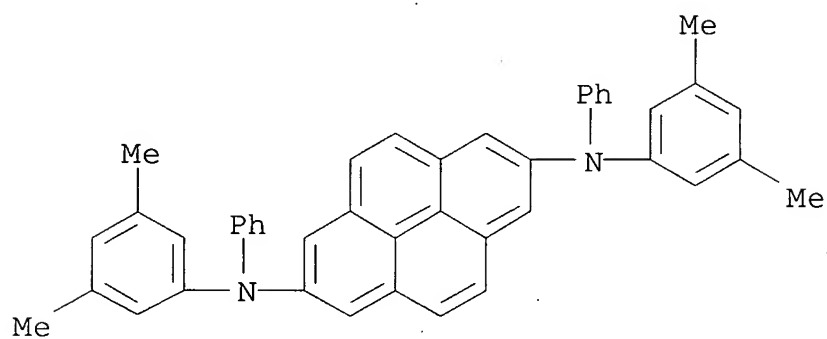
RN 722499-29-8 CAPLUS

CN 2,7-Pyrenediamine, N,N'-diphenyl-N,N'-di-8-quinolinyl- (9CI) (CA  
INDEX NAME)



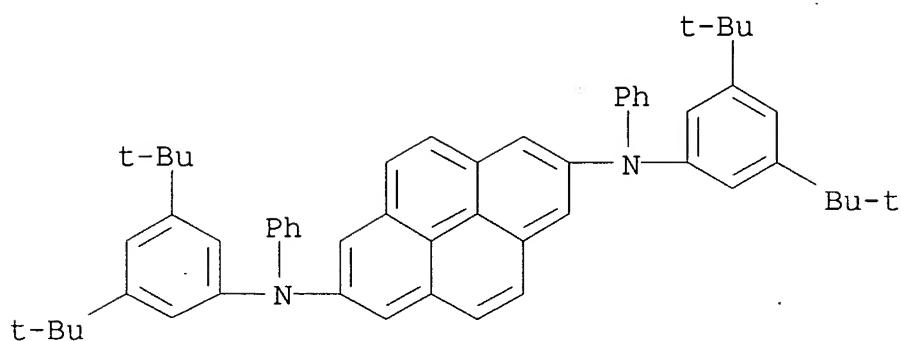
RN 722499-30-1 CAPLUS

CN 2,7-Pyrenediamine, N,N'-bis(3,5-dimethylphenyl)-N,N'-diphenyl-  
(9CI) (CA INDEX NAME)



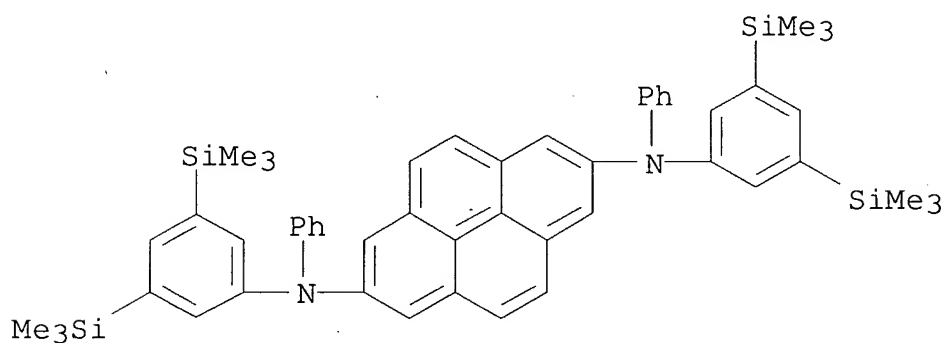
RN 722499-31-2 CAPLUS

CN 2,7-Pyrenediamine, N,N'-bis[3,5-bis(1,1-dimethylethyl)phenyl]-N,N'-diphenyl- (9CI) (CA INDEX NAME)



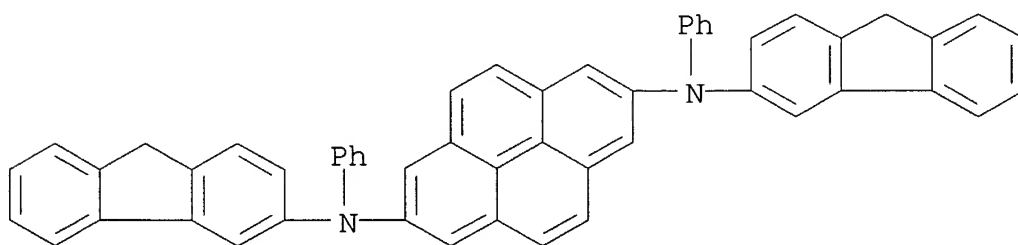
RN 722499-32-3 CAPLUS

CN 2,7-Pyrenediamine, N,N'-bis[3,5-bis(trimethylsilyl)phenyl]-N,N'-diphenyl- (9CI) (CA INDEX NAME)



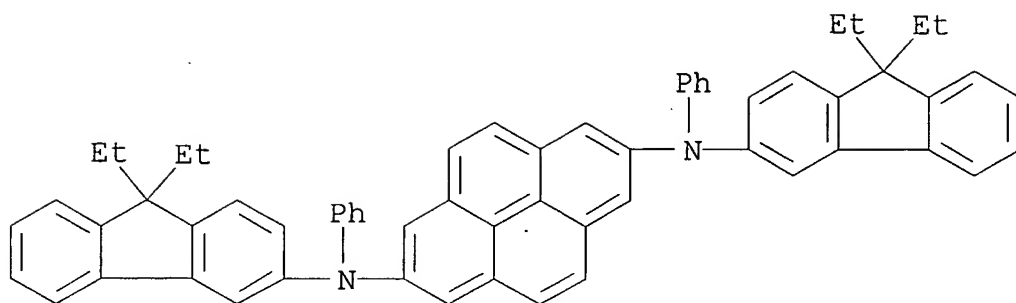
RN 722499-33-4 CAPLUS

CN 2,7-Pyrenediamine, N,N'-di-9H-fluoren-3-yl-N,N'-diphenyl- (9CI)  
(CA INDEX NAME)



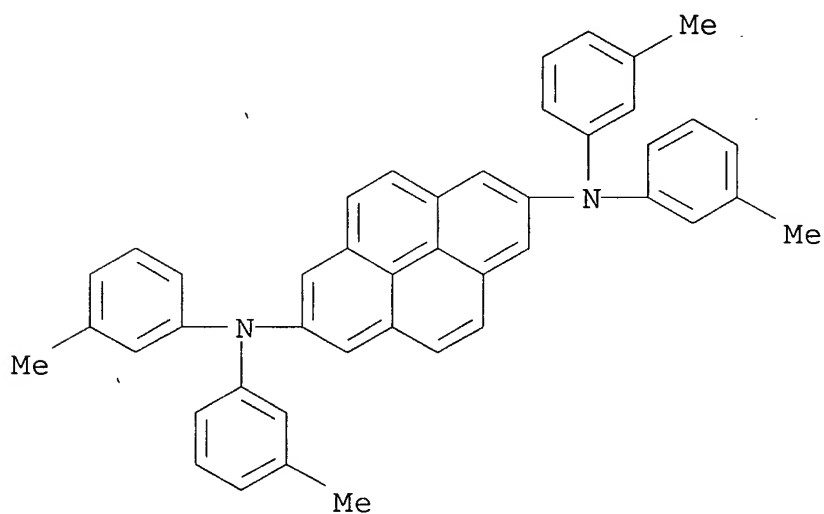
RN 722499-34-5 CAPLUS

CN 2,7-Pyrenediamine, N,N'-bis(9,9-diethyl-9H-fluoren-3-yl)-N,N'-diphenyl- (9CI) (CA INDEX NAME)



RN 722499-35-6 CAPLUS

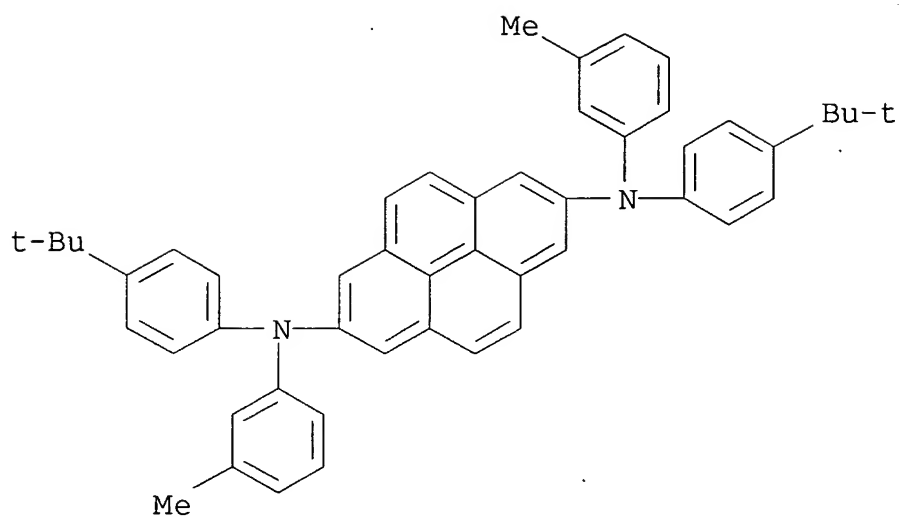
CN 2,7-Pyrenediamine, N,N,N',N'-tetrakis(3-methylphenyl)- (9CI) (CA INDEX NAME)



RN 722499-36-7 CAPLUS

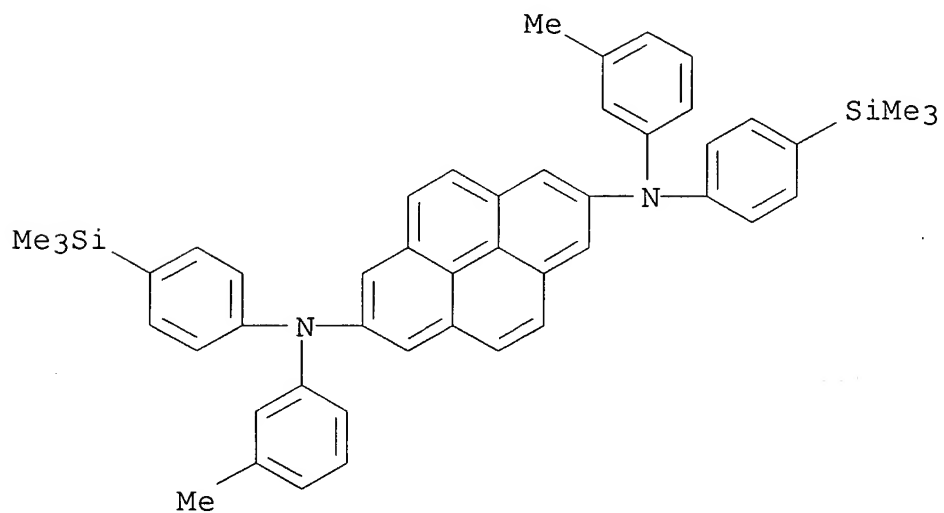
CN 2,7-Pyrenediamine, N,N'-bis[4-(1,1-dimethylethyl)phenyl]-N,N'-bis(3-methylphenyl)- (9CI) (CA INDEX NAME)





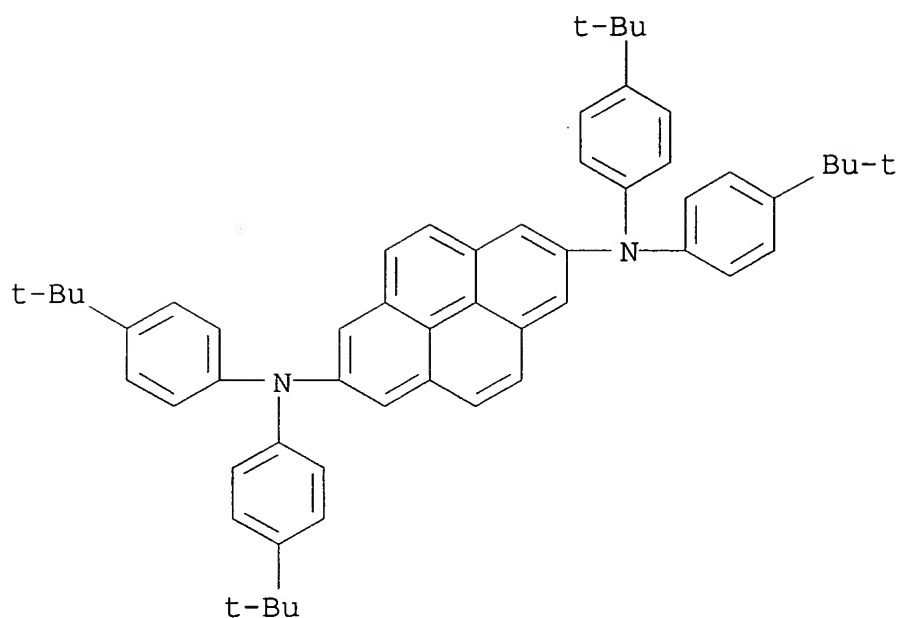
RN 722499-37-8 CAPLUS

CN 2,7-Pyrenediamine, N,N'-bis(3-methylphenyl)-N,N'-bis[4-(trimethylsilyl)phenyl]- (9CI) (CA INDEX NAME)



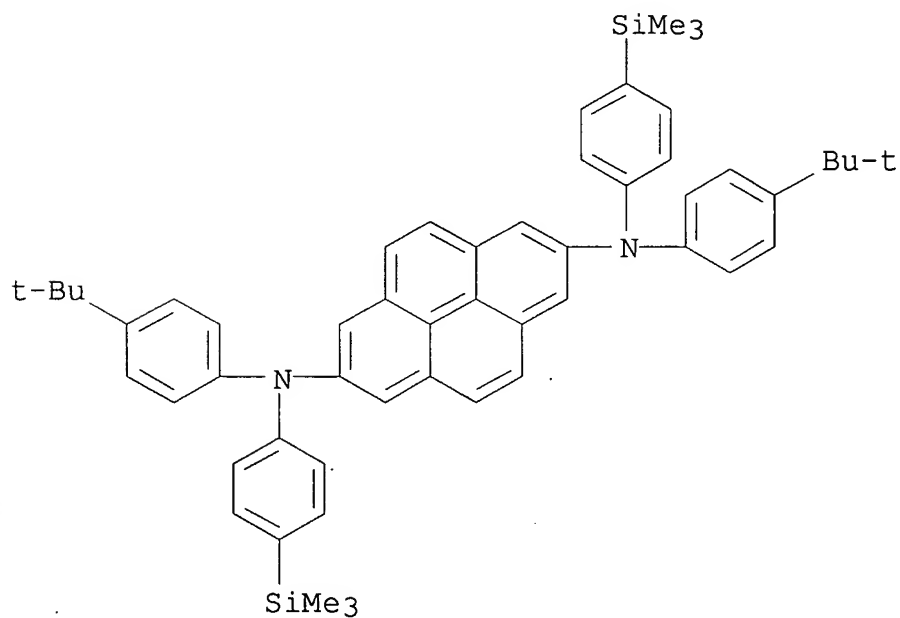
RN 722499-38-9 CAPLUS

CN 2,7-Pyrenediamine, N,N,N',N'-tetrakis[4-(1,1-dimethylethyl)phenyl]- (9CI) (CA INDEX NAME)



RN 722499-39-0 CAPLUS

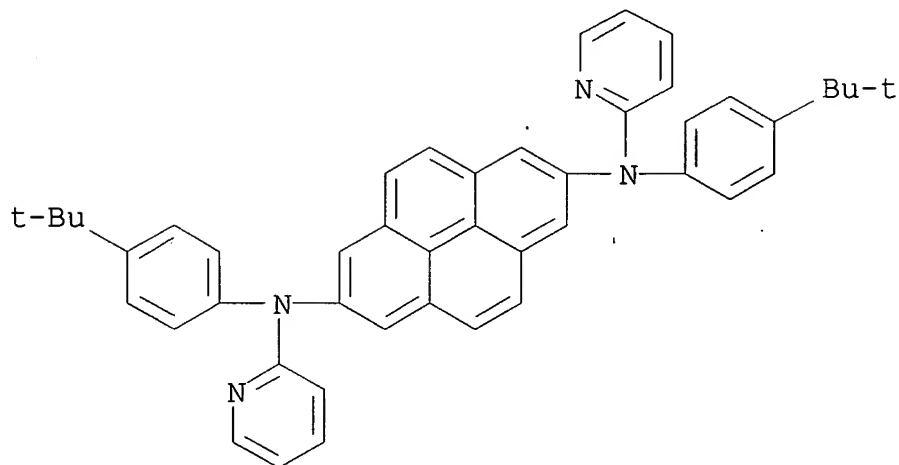
CN 2,7-Pyrenediamine, N,N'-bis[4-(1,1-dimethylethyl)phenyl]-N,N'-bis[4-(trimethylsilyl)phenyl]- (9CI) (CA INDEX NAME)



RN 722499-40-3 CAPLUS

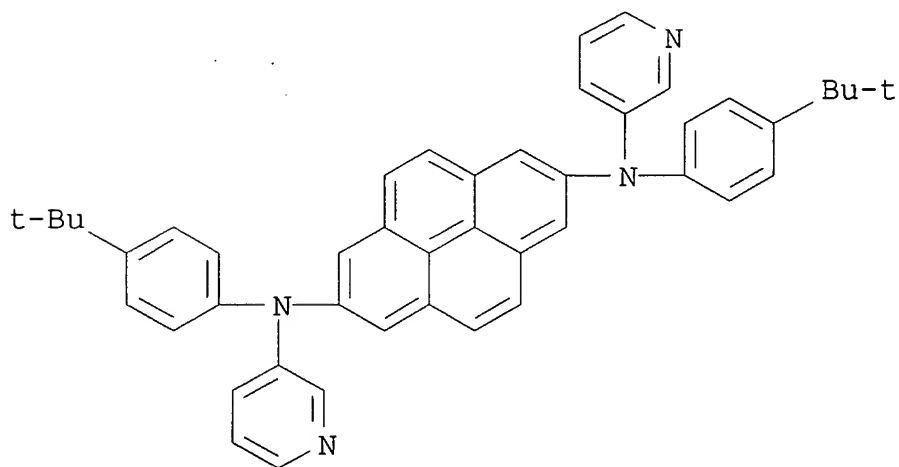
CN 2,7-Pyrenediamine, N,N'-bis[4-(1,1-dimethylethyl)phenyl]-N,N'-di-2-

pyridinyl- (9CI) (CA INDEX NAME)



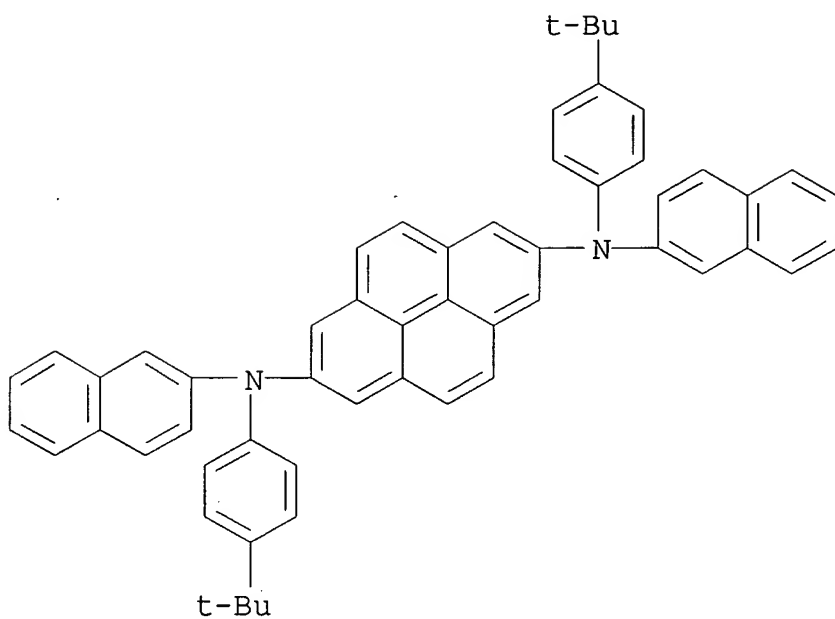
RN 722499-41-4 CAPLUS

CN 2,7-Pyrenediamine, N,N'-bis[4-(1,1-dimethylethyl)phenyl]-N,N'-di-3-pyridinyl- (9CI) (CA INDEX NAME)



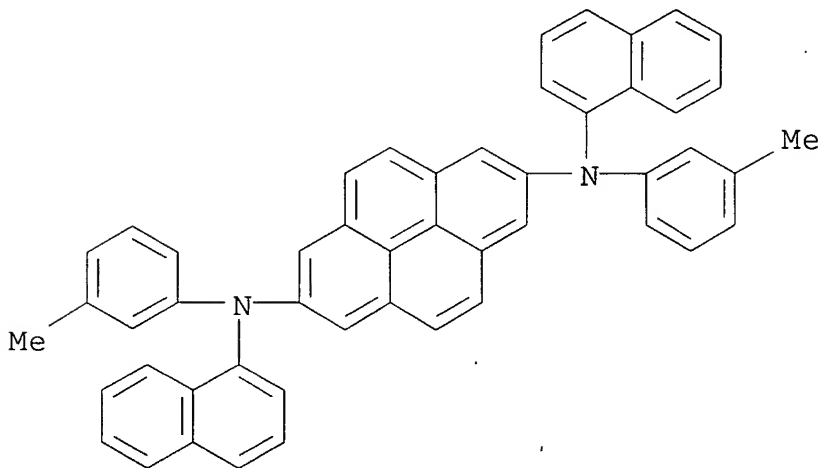
RN 722499-42-5 CAPLUS

CN 2,7-Pyrenediamine, N,N'-bis[4-(1,1-dimethylethyl)phenyl]-N,N'-di-2-naphthalenyl- (9CI) (CA INDEX NAME)



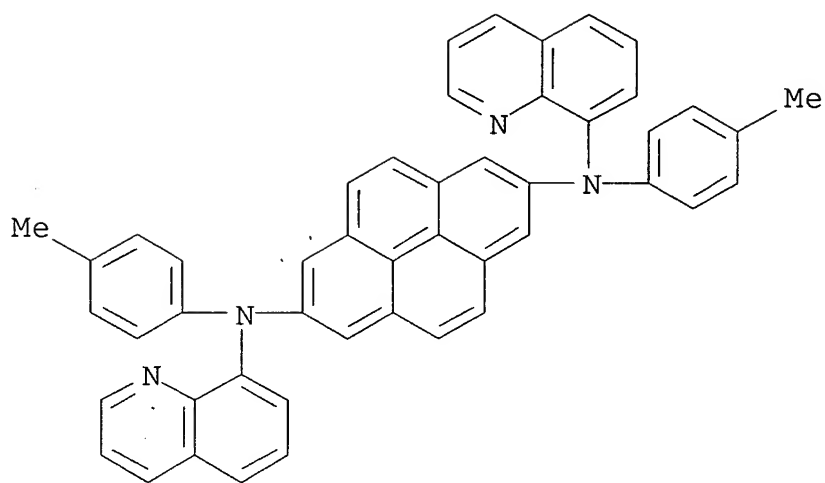
RN 722499-43-6 CAPLUS

CN 2,7-Pyrenediimine, N,N'-bis(3-methylphenyl)-N,N'-di-1-naphthalenyl-  
(9CI) (CA INDEX NAME)



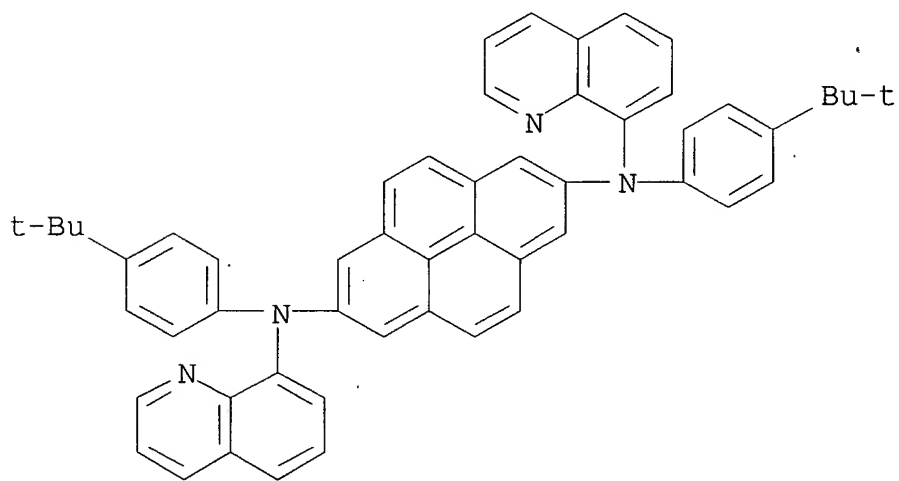
RN 722499-44-7 CAPLUS

CN 2,7-Pyrenediimine, N,N'-bis(4-methylphenyl)-N,N'-di-8-quinolinyl-  
(9CI) (CA INDEX NAME)



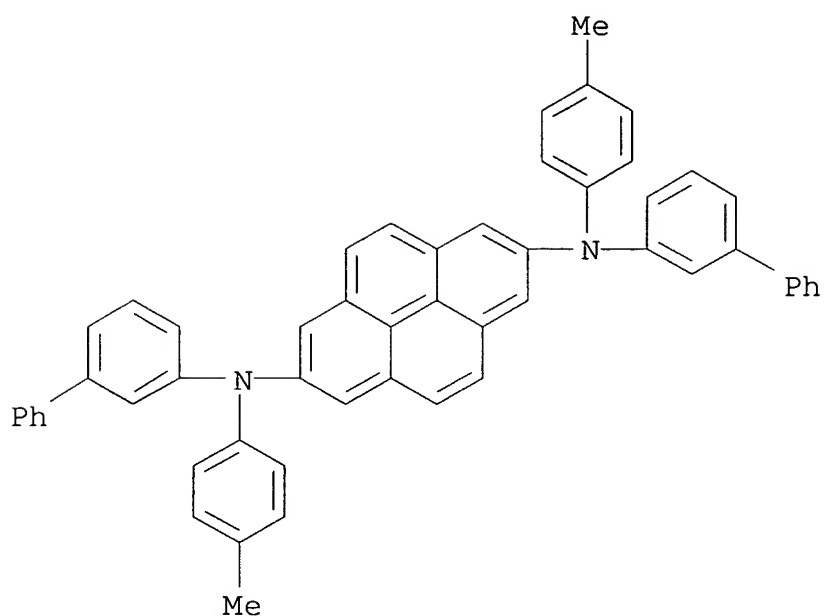
RN 722499-45-8 CAPLUS

CN 2,7-Pyrenediamine, N,N'-bis[4-(1,1-dimethylethyl)phenyl]-N,N'-di-8-quinolinyl- (9CI) (CA INDEX NAME)



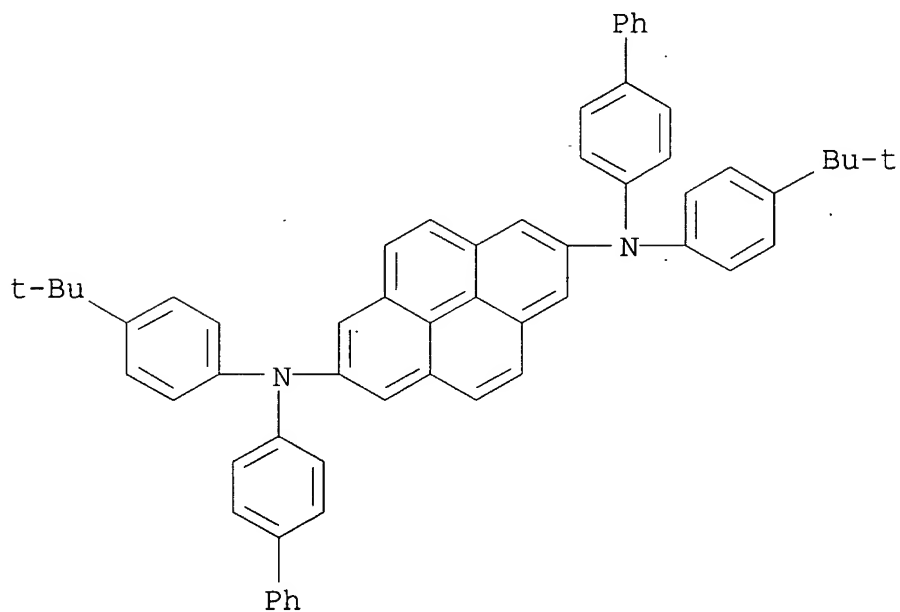
RN 722499-46-9 CAPLUS

CN 2,7-Pyrenediamine, N,N'-bis[1,1'-biphenyl]-3-yl-N,N'-bis(4-methylphenyl)- (9CI) (CA INDEX NAME)



RN 722499-47-0 CAPLUS

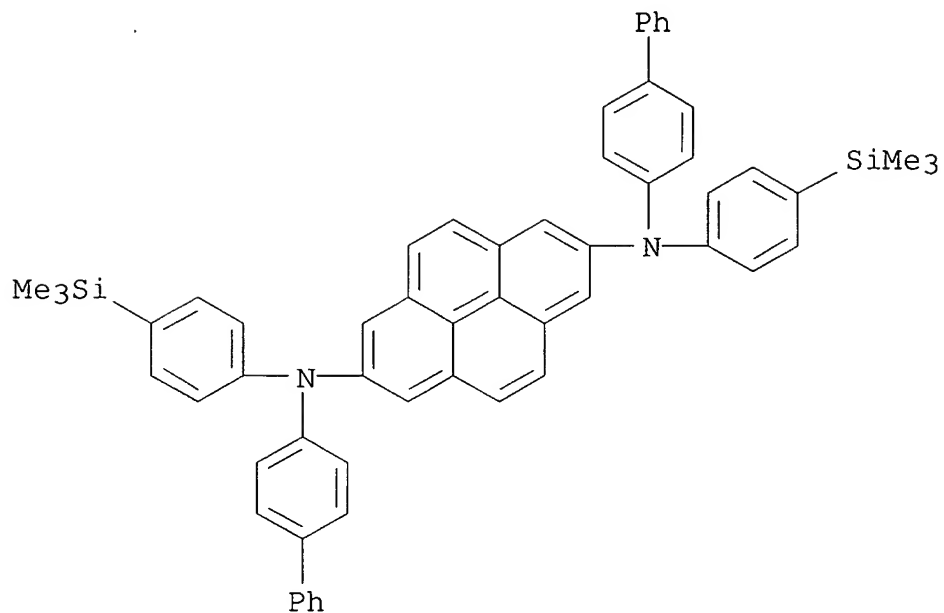
CN 2,7-Pyrenediamine, N,N'-bis[1,1'-biphenyl]-4-yl-N,N'-bis[4-(1,1-dimethylethyl)phenyl]- (9CI) (CA INDEX NAME)



RN 722499-48-1 CAPLUS

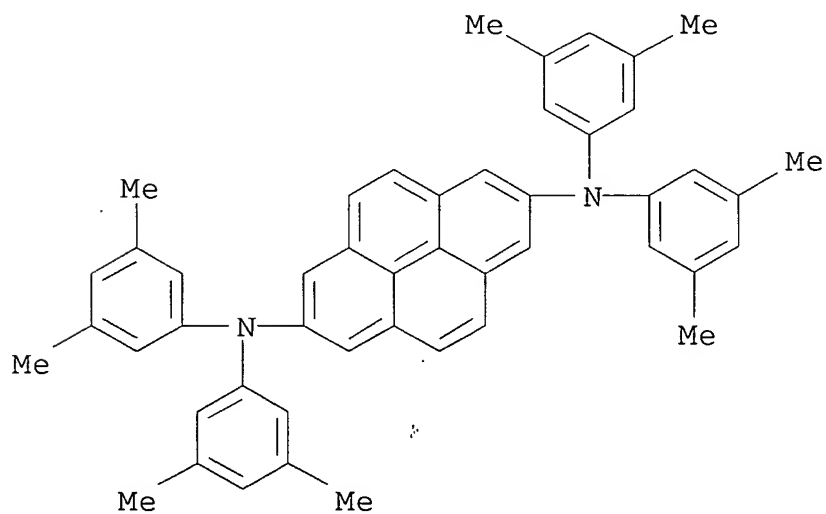
CN 2,7-Pyrenediamine, N,N'-bis[1,1'-biphenyl]-4-yl-N,N'-bis[4-

(trimethylsilyl)phenyl]- (9CI) (CA INDEX NAME)



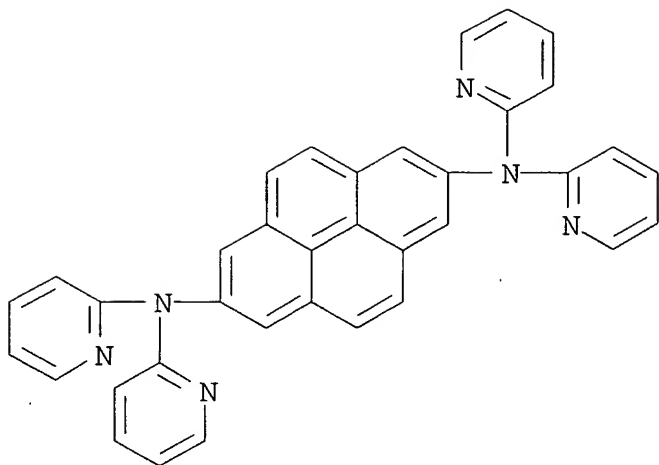
RN 722499-49-2 CAPLUS

CN 2,7-Pyrenediamine, N,N,N',N'-tetrakis(3,5-dimethylphenyl)- (9CI)  
(CA INDEX NAME)



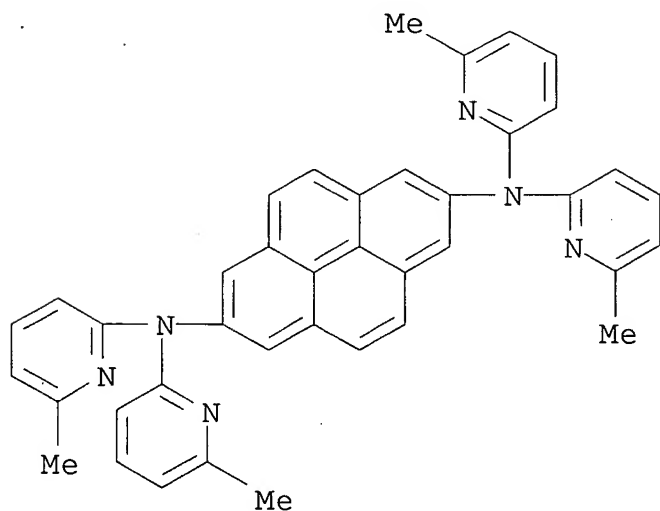
RN 722499-50-5 CAPLUS

CN 2,7-Pyrenediamine, N,N,N',N'-tetra-2-pyridinyl- (9CI) (CA INDEX NAME)



RN 722499-51-6 CAPLUS

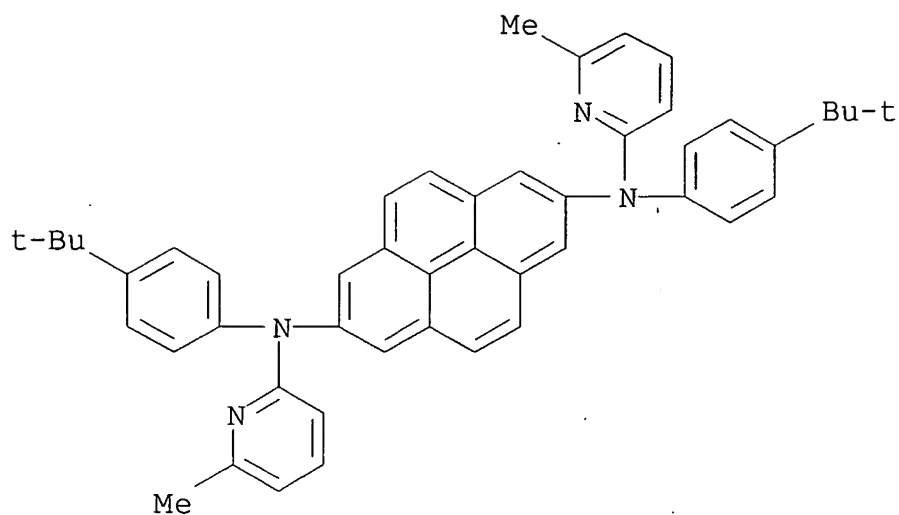
CN 2,7-Pyrenediamine, N,N,N',N'-tetrakis(6-methyl-2-pyridinyl)- (9CI)  
(CA INDEX NAME)



RN 722499-52-7 CAPLUS

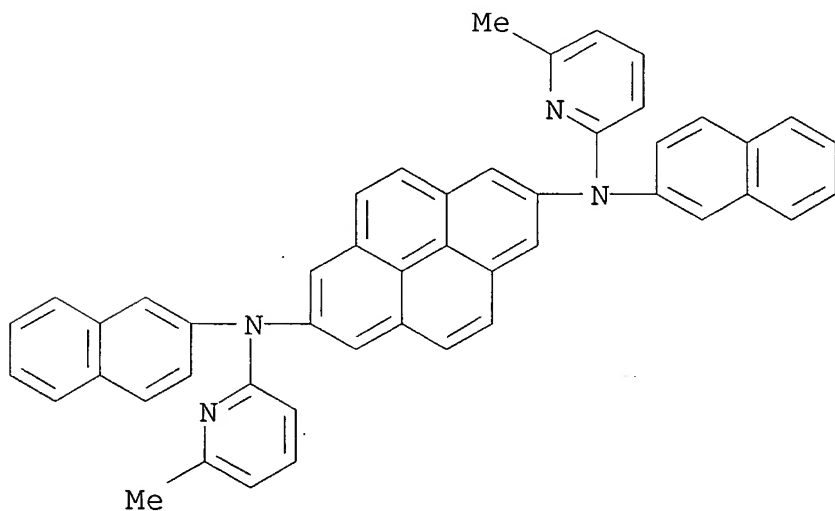
CN 2,7-Pyrenediamine, N,N'-bis[4-(1,1-dimethylethyl)phenyl]-N,N'-bis(6-methyl-2-pyridinyl)- (9CI) (CA INDEX NAME)





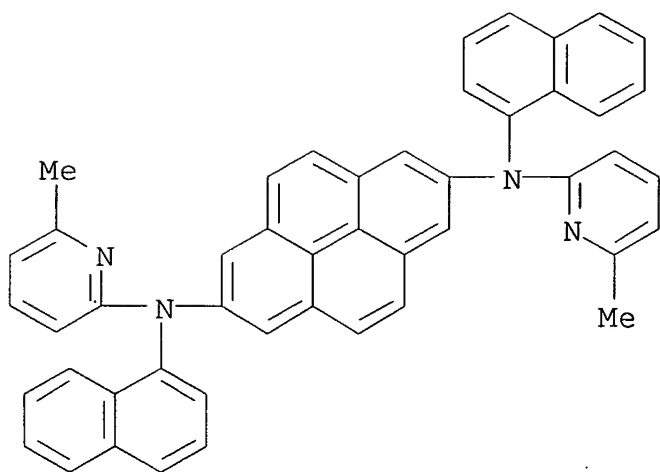
RN 722499-53-8 CAPLUS

CN 2,7-Pyrenediamine, N,N'-bis(6-methyl-2-pyridinyl)-N,N'-di-2-naphthalenyl- (9CI) (CA INDEX NAME)



RN 722499-54-9 CAPLUS

CN 2,7-Pyrenediamine, N,N'-bis(6-methyl-2-pyridinyl)-N,N'-di-1-naphthalenyl- (9CI) (CA INDEX NAME)

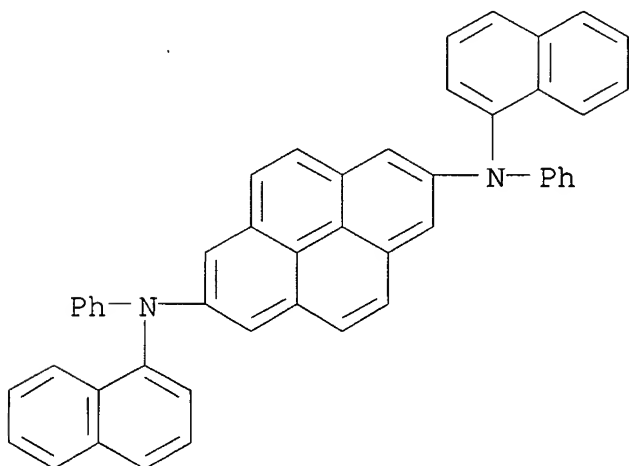


IT 722498-96-6

(blue-emitting dopant; organic electroluminescent devices employing blue-emitting dopants based on amine derivs. of pyrene)

RN 722498-96-6 CAPLUS

CN 2,7-Pyrenediamine, N,N'-di-1-naphthalenyl-N,N'-diphenyl- (9CI)  
(CA INDEX NAME)



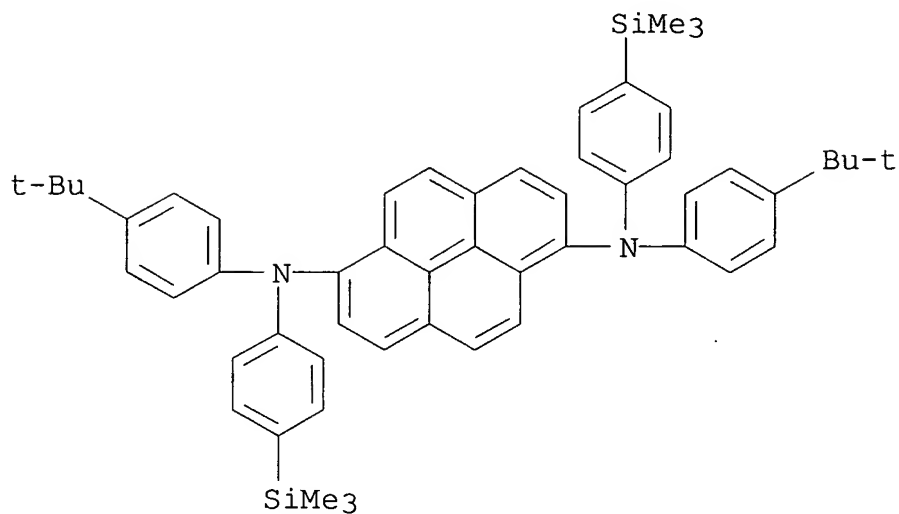
IT 722498-52-4P 722498-53-5P 722498-55-7P

(blue-emitting dopant; organic electroluminescent devices employing blue-emitting dopants based on amine derivs. of pyrene)

RN 722498-52-4 CAPLUS

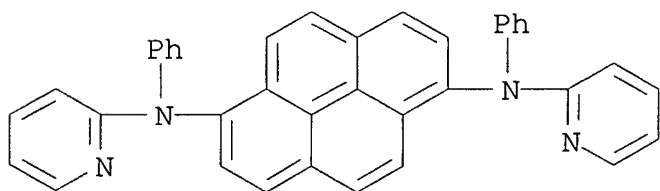
CN 1,6-Pyrenediamine, N,N'-bis[4-(1,1-dimethylethyl)phenyl]-N,N'-

bis[4-(trimethylsilyl)phenyl]- (9CI) (CA INDEX NAME)



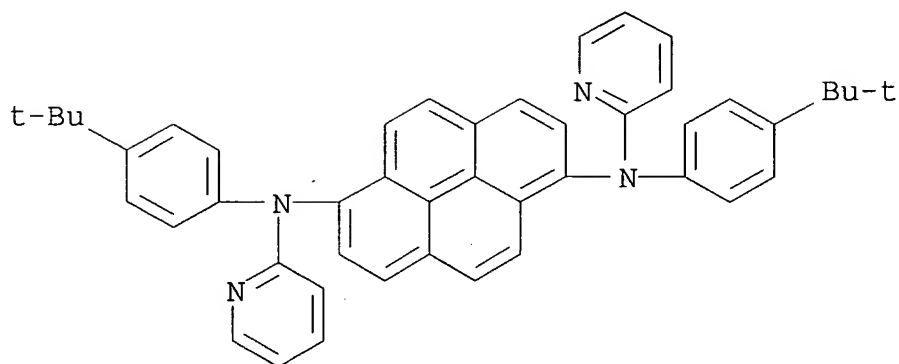
RN 722498-53-5 CAPLUS

CN 1,6-Pyrenediamine, N,N'-diphenyl-N,N'-di-2-pyridinyl- (9CI) (CA INDEX NAME)



RN 722498-55-7 CAPLUS

CN 1,6-Pyrenediamine, N,N'-bis[4-(1,1-dimethylethyl)phenyl]-N,N'-di-2-pyridinyl- (9CI) (CA INDEX NAME)

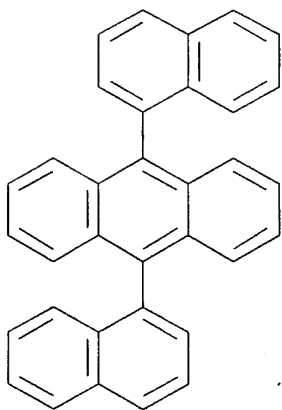


IT 26979-27-1 43069-36-9 55009-75-1  
 331749-28-1 400606-81-7 626236-19-9  
 653599-45-2 653599-46-3 722498-56-8  
 722498-57-9 722498-58-0 722498-59-1  
 722498-62-6 722498-64-8 722498-65-9  
 722498-66-0 722498-67-1 722498-68-2  
 722498-69-3 722498-70-6 722498-71-7  
 722498-72-8 722498-73-9 722498-74-0  
 722498-75-1

(light-emitting host; organic  
 electroluminescent devices employing blue-emitting dopants  
 based on amine derivs. of pyrene)

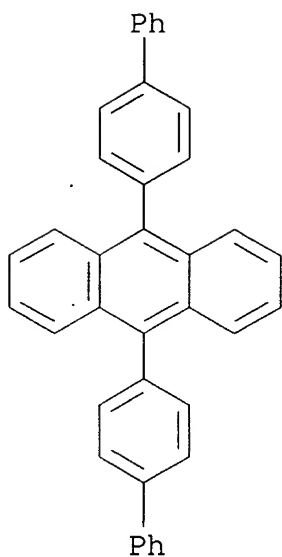
RN 26979-27-1 CAPLUS

CN Anthracene, 9,10-di-1-naphthalenyl- (9CI) (CA INDEX NAME)



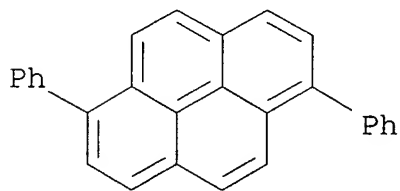
RN 43069-36-9 CAPLUS

CN Anthracene, 9,10-bis([1,1'-biphenyl]-4-yl)- (9CI) (CA INDEX NAME)



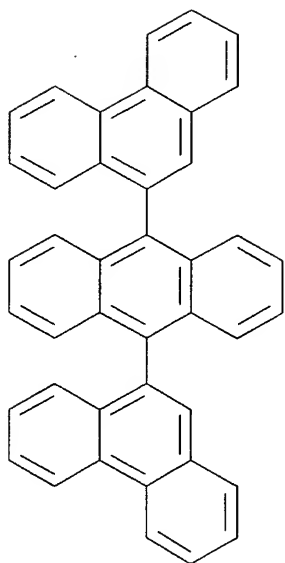
RN 55009-75-1 CAPLUS

CN Pyrene, 1,6-diphenyl- (9CI) (CA INDEX NAME)

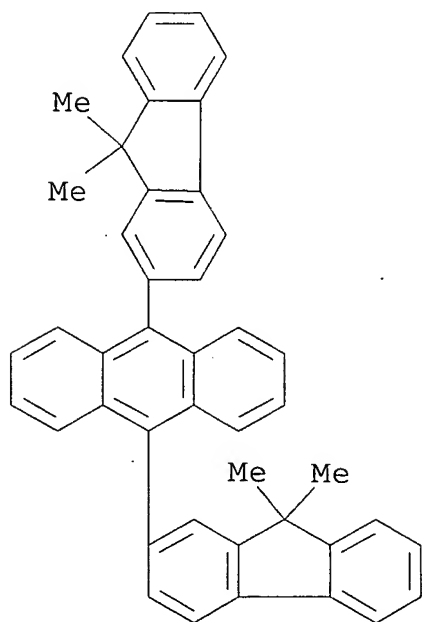


RN 331749-28-1 CAPLUS

CN Anthracene, 9,10-di-9-phenanthrenyl- (9CI) (CA INDEX NAME)

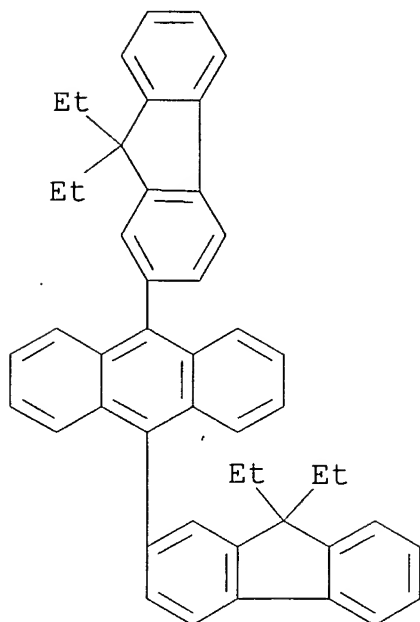


RN 400606-81-7 CAPLUS  
CN Anthracene, 9,10-bis(9,9-dimethyl-9H-fluoren-2-yl)- (9CI) (CA  
INDEX NAME)

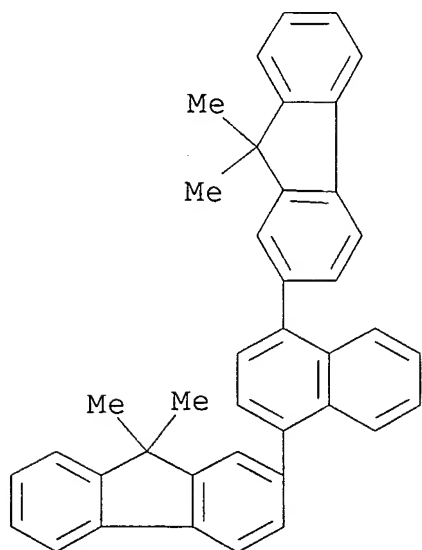


RN 626236-19-9 CAPLUS  
CN Anthracene, 9,10-bis(9,9-diethyl-9H-fluoren-2-yl)- (9CI) (CA

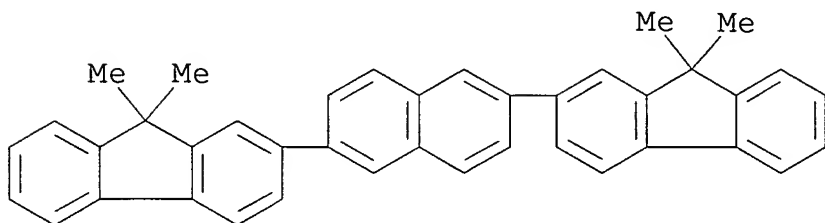
INDEX NAME)



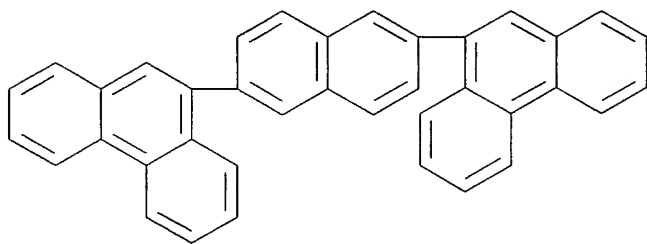
RN 653599-45-2 CAPLUS

CN 9H-Fluorene, 2,2'-(1,4-naphthalenediyl)bis[9,9-dimethyl- (9CI)  
(CA INDEX NAME)

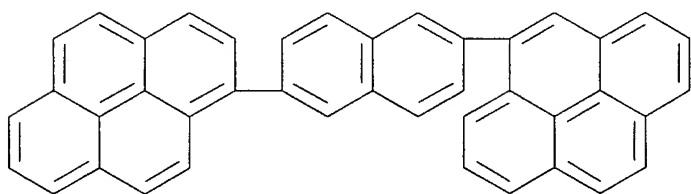
RN 653599-46-3 CAPLUS  
CN 9H-Fluorene, 2,2'-(2,6-naphthalenediyl)bis[9,9-dimethyl- (9CI)  
(CA INDEX NAME)



RN 722498-56-8 CAPLUS  
CN Phenanthrene, 9,9'-(2,6-naphthalenediyl)bis- (9CI) (CA INDEX  
NAME)

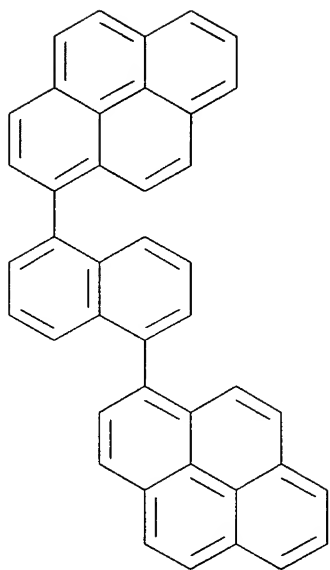


RN 722498-57-9 CAPLUS  
CN Pyrene, 1-[6-(4-pyrenyl)-2-naphthalenyl]- (9CI) (CA INDEX NAME)



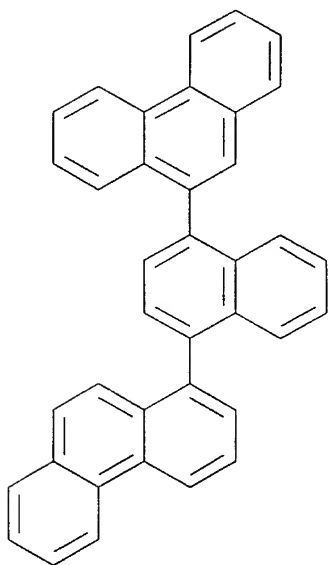
RN 722498-58-0 CAPLUS  
CN Pyrene, 1,1'-(1,5-naphthalenediyl)bis- (9CI) (CA INDEX NAME)





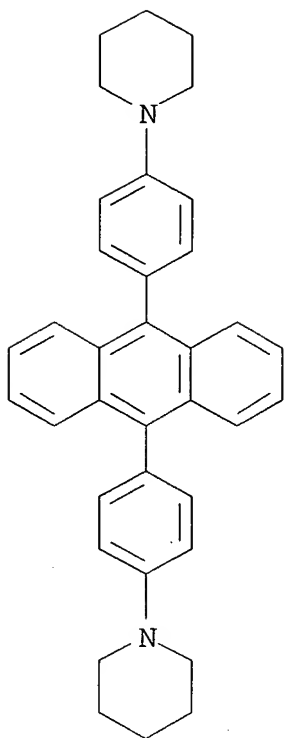
RN 722498-59-1 CAPLUS

CN Phenanthrene, 1-[4-(9-phenanthrenyl)-1-naphthalenyl]- (9CI) (CA INDEX NAME)



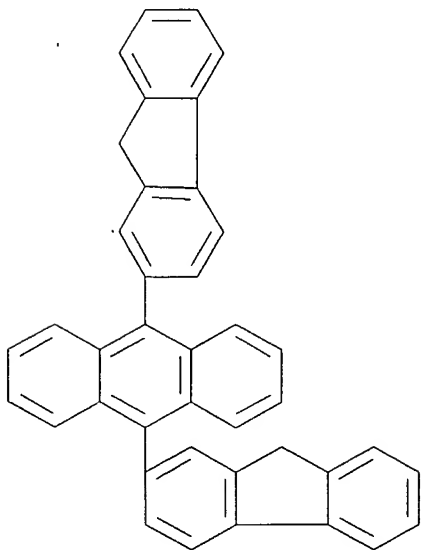
RN 722498-62-6 CAPLUS

CN Piperidine, 1,1'-(9,10-anthracenediyl-di-4,1-phenylene)bis- (9CI)  
(CA INDEX NAME)

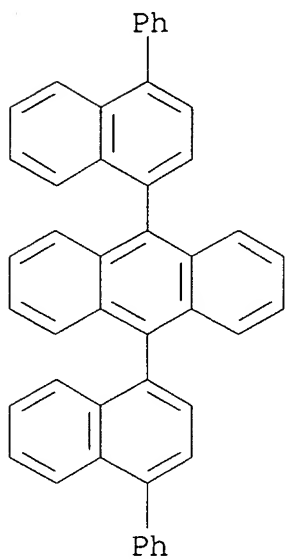


RN 722498-64-8 CAPLUS

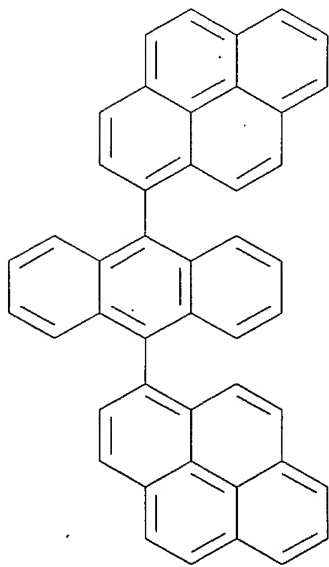
CN Anthracene, 9,10-di-9H-fluoren-2-yl- (9CI) (CA INDEX NAME)



RN 722498-65-9 CAPLUS  
CN Anthracene, 9,10-bis(4-phenyl-1-naphthalenyl)- (9CI) (CA INDEX NAME)

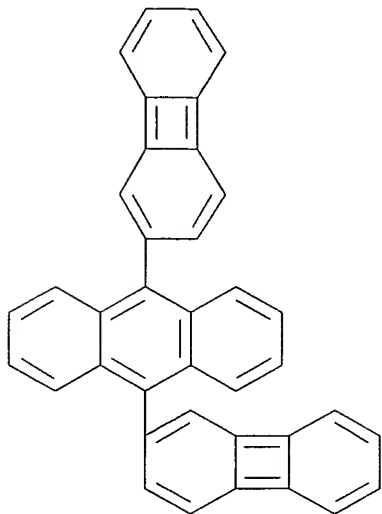


RN 722498-66-0 CAPLUS  
CN Pyrene, 1,1'-(9,10-anthracenediyl)bis- (9CI) (CA INDEX NAME)



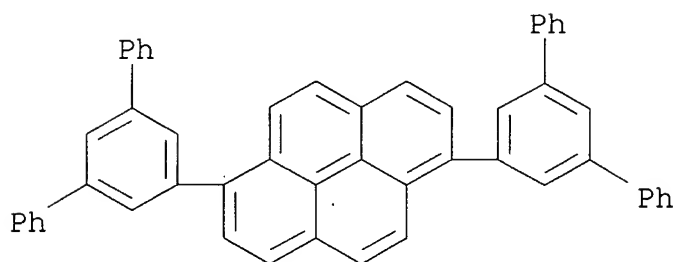
RN 722498-67-1 CAPLUS

• CN Anthracene, 9,10-bis(2-biphenylenyl)- (9CI) (CA INDEX NAME)



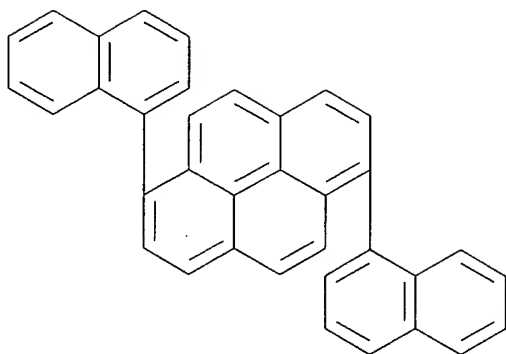
RN 722498-68-2 CAPLUS

CN Pyrene, 1,6-bis([1,1':3',1''-terphenyl]-5'-yl)- (9CI) (CA INDEX NAME)

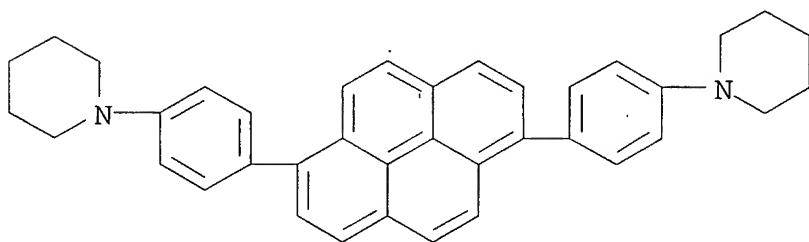


RN 722498-69-3 CAPLUS

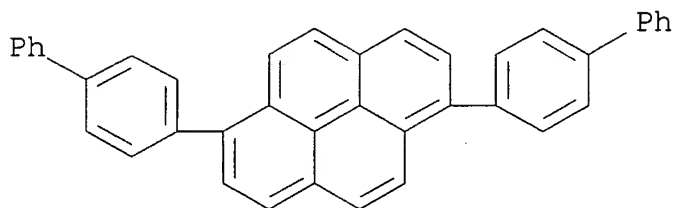
CN Pyrene, 1,6-di-1-naphthalenyl- (9CI) (CA INDEX NAME)



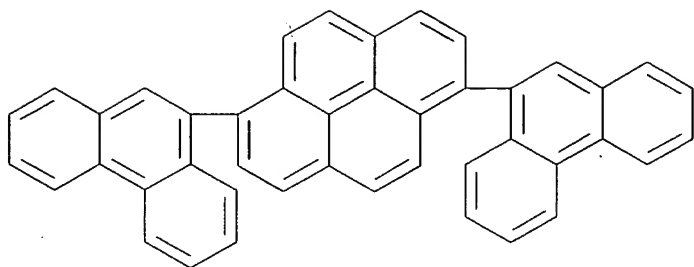
RN 722498-70-6 CAPLUS  
CN Piperidine, 1,1'-(1,6-pyrenediyl-di-4,1-phenylene)bis- (9CI) (CA INDEX NAME)



RN 722498-71-7 CAPLUS  
CN Pyrene, 1,6-bis[1,1'-biphenyl]-4-yl- (9CI) (CA INDEX NAME)

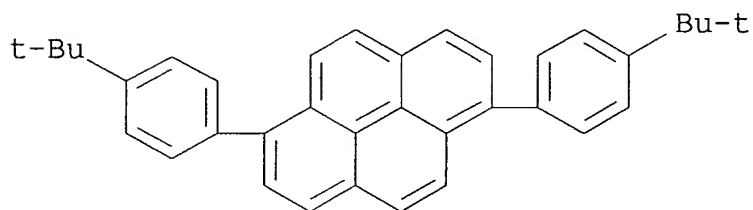


RN 722498-72-8 CAPLUS  
CN Pyrene, 1,6-di-9-phenanthrenyl- (9CI) (CA INDEX NAME)



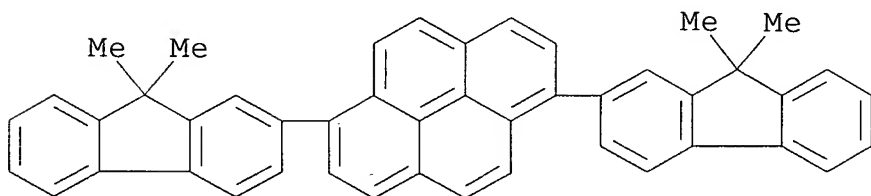
RN 722498-73-9 CAPLUS

CN Pyrene, 1,6-bis[4-(1,1-dimethylethyl)phenyl]- (9CI) (CA INDEX NAME)



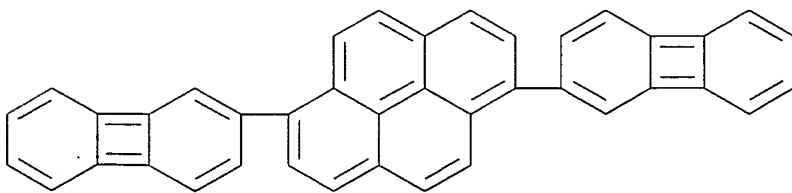
RN 722498-74-0 CAPLUS

CN Pyrene, 1,6-bis(9,9-dimethyl-9H-fluoren-2-yl)- (9CI) (CA INDEX NAME)



RN 722498-75-1 CAPLUS

CN Pyrene, 1,6-bis(2-biphenylenyl)- (9CI) (CA INDEX NAME)

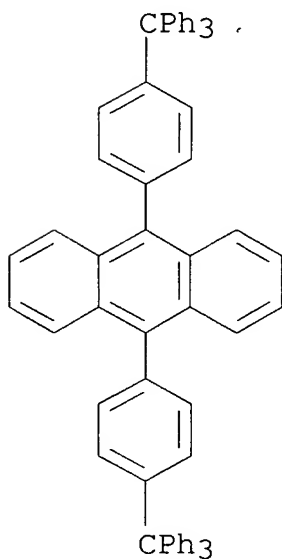


IT 722498-63-7

(light-emitting host; organic  
electroluminescent devices employing blue-emitting dopants  
based on amine derivs. of pyrene)

RN 722498-63-7 CAPLUS

CN Anthracene, 9,10-bis[4-(triphenylmethyl)phenyl]- (9CI) (CA INDEX  
NAME)

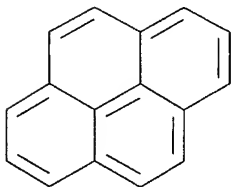


IT 129-00-0, Pyrene, reactions

(organic electroluminescent devices employing blue-emitting  
dopants based on amine derivs. of pyrene)

RN 129-00-0 CAPLUS

CN Pyrene (8CI, 9CI) (CA INDEX NAME)

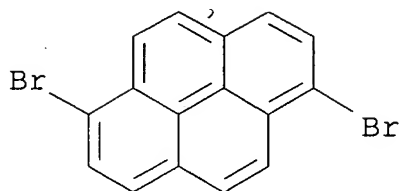


IT 27973-29-1P, 1,6-Dibromopyrene

(organic electroluminescent devices employing blue-emitting  
dopants based on amine derivs. of pyrene)

RN 27973-29-1 CAPLUS

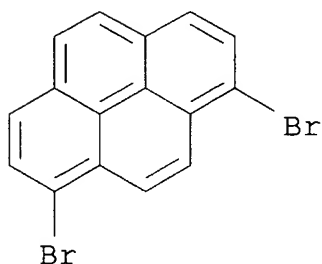
CN Pyrene, 1,6-dibromo- (6CI, 8CI, 9CI) (CA INDEX NAME)



IT 38303-35-4P, 1,8-Dibromopyrene  
(organic electroluminescent devices employing blue-emitting  
dopants based on amine derivs. of pyrene)

RN 38303-35-4 CAPLUS

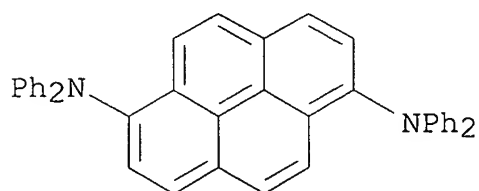
CN Pyrene, 1,8-dibromo- (9CI) (CA INDEX NAME)



IT 76656-53-6P  
(organic electroluminescent devices employing blue-emitting  
dopants based on amine derivs. of pyrene)

RN 76656-53-6 CAPLUS

CN 1,6-Pyrenediamine, N,N,N',N'-tetraphenyl- (9CI) (CA INDEX NAME)



IC ICM C09K011-06

CC 73-11 (Optical, Electron, and Mass Spectroscopy and  
Other Related Properties)

Section cross-reference(s): 22, 25, 76

IT Luminescent substances



(electroluminescent, blue-emitting; organic electroluminescent devices employing blue-emitting dopants based on amine derivs. of pyrene)

IT 76656-51-4 143141-30-4 163969-53-7  
663954-33-4 668019-96-3 722498-76-2  
722498-77-3 722498-78-4 722498-79-5  
722498-80-8 722498-81-9 722498-82-0  
722498-83-1 722498-84-2 722498-85-3  
722498-86-4 722498-87-5 722498-88-6  
722498-89-7 722498-90-0 722498-91-1  
722498-92-2 722498-93-3 722498-94-4  
722498-95-5 722498-97-7 722498-98-8  
722498-99-9 722499-00-5 722499-01-6  
722499-02-7 722499-03-8 722499-04-9  
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722499-41-4 722499-42-5 722499-43-6  
722499-44-7 722499-45-8 722499-46-9  
722499-47-0 722499-48-1 722499-49-2  
722499-50-5 722499-51-6 722499-52-7  
722499-53-8 722499-54-9

(blue-emitting dopant; organic electroluminescent devices employing blue-emitting dopants based on amine derivs. of pyrene)

IT 722498-96-6  
(blue-emitting dopant; organic electroluminescent devices employing blue-emitting dopants based on amine derivs. of pyrene)

IT 722498-52-4P 722498-53-5P 722498-55-7P  
(blue-emitting dopant; organic electroluminescent devices employing blue-emitting dopants based on amine derivs. of pyrene)

IT 188-71-6, Pentabenzo[a,de,kl,o,rst]pentaphene 26979-27-1  
43069-36-9 55009-75-1 331749-28-1  
400606-81-7 626236-19-9 653599-45-2  
653599-46-3 722498-56-8 722498-57-9  
722498-58-0 722498-59-1 722498-60-4  
722498-61-5 722498-62-6 722498-64-8

722498-65-9 722498-66-0 722498-67-1  
722498-68-2 722498-69-3 722498-70-6  
722498-71-7 722498-72-8 722498-73-9  
722498-74-0 722498-75-1

(light-emitting host; organic  
electroluminescent devices employing blue-emitting dopants  
based on amine derivs. of pyrene)

IT 722498-63-7

(light-emitting host; organic  
electroluminescent devices employing blue-emitting dopants  
based on amine derivs. of pyrene)

IT 75-77-4, Chlorotrimethylsilane, reactions 106-37-6,  
1,4-Dibromobenzene 109-04-6, 2-Bromopyridine 122-39-4,  
Diphenylamine, reactions 129-00-0, Pyrene, reactions  
769-92-6, 4-tert-Butylphenylamine 6631-37-4

(organic electroluminescent devices employing blue-emitting  
dopants based on amine derivs. of pyrene)

IT 6999-03-7P, (4-Bromophenyl)trimethylsilane 27973-29-1P,

1,6-Dibromopyrene 722498-51-3P 722498-54-6P

(organic electroluminescent devices employing blue-emitting  
dopants based on amine derivs. of pyrene)

IT 38303-35-4P, 1,8-Dibromopyrene

(organic electroluminescent devices employing blue-emitting  
dopants based on amine derivs. of pyrene)

IT 76656-53-6P

(organic electroluminescent devices employing blue-emitting  
dopants based on amine derivs. of pyrene)

L40 ANSWER 14 OF 65 CAPLUS COPYRIGHT 2005 ACS on STN

ACCESSION NUMBER: 2004:530398 CAPLUS

DOCUMENT NUMBER: 141:96346

TITLE: Organic electroluminescent device

INVENTOR(S): Kato, Tetsuya; Kojima, Kazushige; Ishii,  
Masahiko; Mori, Tomohiko

PATENT ASSIGNEE(S): Denso Co., Ltd., Japan; Toyota Central  
Research and Development Laboratories, Inc.

SOURCE: Jpn. Kokai Tokkyo Koho, 34 pp.

CODEN: JKXXAF

DOCUMENT TYPE: Patent

LANGUAGE: Japanese

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
-----	----	-----	-----	
JP 2004186027	A2	20040702	JP 2002-352620	

2002

PRIORITY APPLN. INFO.:

JP 2002-352620

1204

2002

1204

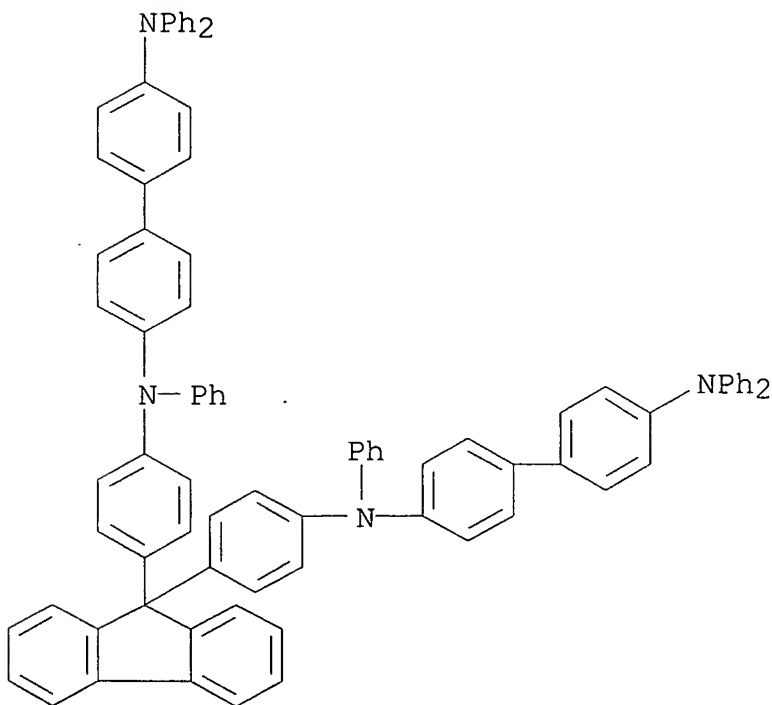
OTHER SOURCE(S): MARPAT 141:96346

AB The invention relates to an organic electroluminescent device comprising a **light-emitting layer** made of the mixture of a tertiary amine hole transporting material, an electron transporting material, and a **luminescent dopant**, wherein the total number of the partial mol. structure in the tertiary amine compound having  $\geq 2$  phenylene groups between nitrogen atoms, is 1 or 0 and the glass transition temperature of the tertiary amine compound is  $\geq 100$  °C, for improving the life time of the **light-emitting layer**

IT 268730-91-2P 474115-76-9P 714201-91-9P  
(organic electroluminescent device comprising tertiary amine compound as hole transporting material)

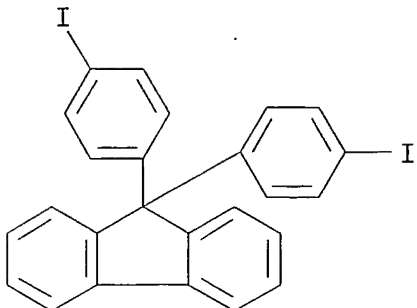
RN 268730-91-2 CAPLUS

CN [1,1'-Biphenyl]-4,4'-diamine, N,N'-(9H-fluoren-9-ylidenedi-4,1-phenylene)bis[N,N',N'-triphenyl- (9CI) (CA INDEX NAME)



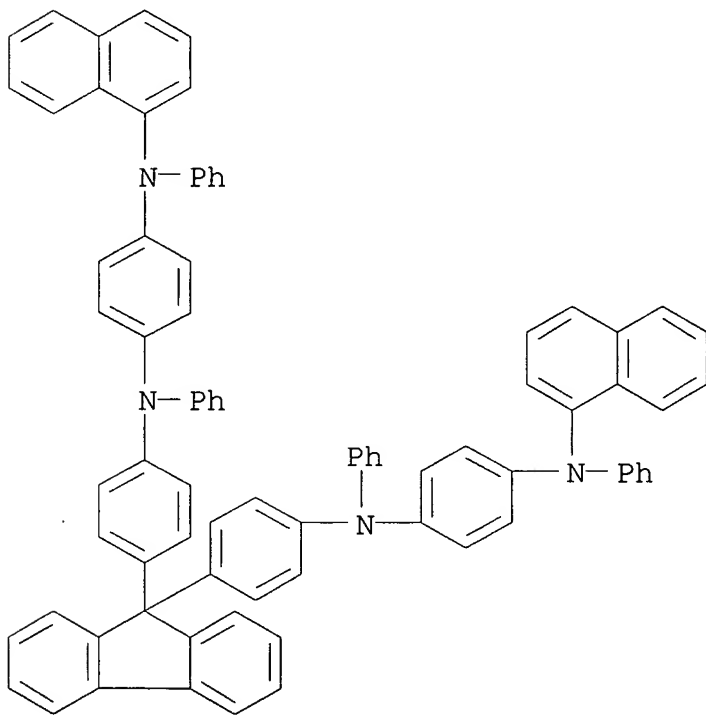
RN 474115-76-9 CAPLUS

CN 9H-Fluorene, 9,9-bis(4-iodophenyl)- (9CI) (CA INDEX NAME)



RN 714201-91-9 CAPLUS

CN 1,4-Benzenediamine, N,N'-(9H-fluoren-9-ylidenedi-4,1-phenylene)bis[N,N'-diphenyl-N'-1-naphthalenyl- (9CI) (CA INDEX NAME)



IC ICM H05B033-22

ICS C09K011-06; H05B033-14; H05B033-28; C07C211-54; C07C211-58

CC 73-11 (Optical, Electron, and Mass Spectroscopy and Other Related Properties)

Section cross-reference(s): 74

IT 123847-85-8P, N,N'-Di[1-naphthyl]-N,N'-diphenylbenzidine  
167218-46-4P 185690-39-5P, 4,4',4''-Tris[[1-  
naphthyl]phenylamino]triphenylamine 205930-46-7P 209980-47-2P  
268730-91-2P 474115-76-9P 714201-90-8P  
714201-91-9P

(organic electroluminescent device comprising tertiary amine  
compound as hole transporting material)

L40 ANSWER 15 OF 65 CAPLUS COPYRIGHT 2005 ACS on STN

ACCESSION NUMBER: 2004:493812 CAPLUS

DOCUMENT NUMBER: 141:61840

TITLE: Electroluminescent materials and devices based  
on metal complexes of 1-phenyl-3-methyl-4-  
trimethylacetyl-pyrazol-5-one

INVENTOR(S): Kathirgamanathan, Poopathy; Surendrakumar,  
Sivagnanasundram; Gemmell, Patrick;  
Ganeshamurugan, Subramaniam; Kumaraverl,  
Muttulingham; Partheepan, Arumugam; Suresh,  
Sutheralingam; Selvaranjan, Selvadurai

PATENT ASSIGNEE(S): Elam-T Limited, UK

SOURCE: PCT Int. Appl., 59 pp.

CODEN: PIXXD2

DOCUMENT TYPE: Patent

LANGUAGE: English

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
-----	----	-----	-----	
WO 2004050793	A1	20040617	WO 2003-GB5303	

2003  
1205

W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA,  
CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI,  
GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG,  
KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK,  
MN, MW, MX, MZ, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU,  
SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA,  
UG, US, UZ, VC, VN, YU, ZA, ZM, ZW  
RW: BW, GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW,  
AM, AZ, BY, KG, KZ, MD, RU, TJ, TM, AT, BE, BG, CH, CY,  
CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC,  
NL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA,  
GN, GQ, GW, ML, MR, NE, SN, TD, TG

PRIORITY APPLN. INFO.:

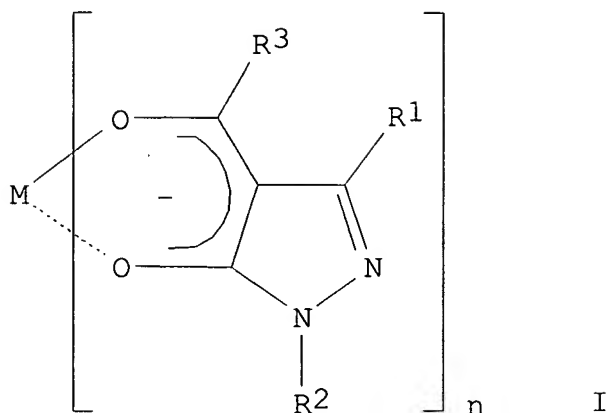
GB 2002-28335

A

2002  
1205

OTHER SOURCE(S) :  
GI

MARPAT 141:61840

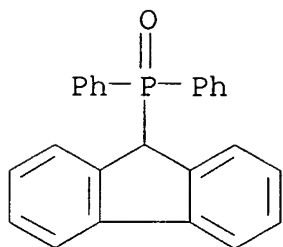


AB Electroluminescent compds. are described by formula (I) where M is a metal other than Al; n is the valency of M; R1, R2 and R3 which may be the same or different are selected from hydrogen, hydrocarbonyl groups, substituted and unsubstituted aliphatic groups, substituted and unsubstituted aromatic, heterocyclic and polycyclic ring structures, fluorocarbons such as trifluoromethyl groups, halogens such as fluorine or thiophenyl groups or nitrile; R1, and R3 can also be form ring structures and R1, R2 and R3 can be copolymerizable with a monomer, e.g. styrene. Electroluminescent device comprising the compound of formula (I) in the **luminescent layer** are also discussed. Thus, metal complex of 1-phenyl-3-methyl-4-trimethylacetyl-pyrazol-5-one were prepared and characterized.

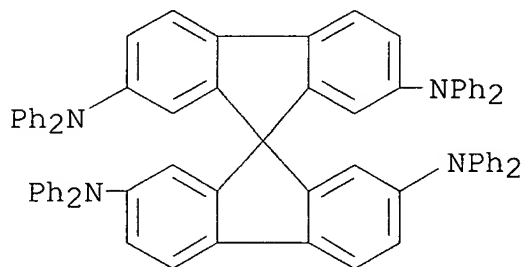
IT 42328-93-8D, derivs., metal complexes 189363-47-1D  
, derivs., metal complexes 706820-55-5D, derivs., metal  
complexes 706820-56-6D, derivs., metal complexes  
706820-57-7D, derivs., metal complexes  
(electroluminescent materials and devices based on metal  
complexes)

RN 42328-93-8 CAPLUS

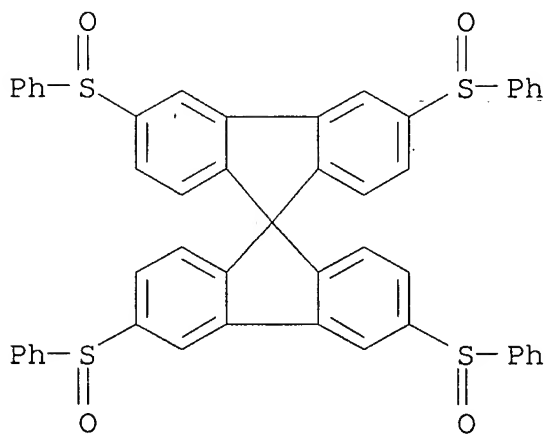
CN Phosphine oxide, 9H-fluoren-9-ylidiphenyl- (9CI) (CA INDEX NAME)



RN 189363-47-1 CAPLUS  
 CN 9,9'-Spirobi[9H-fluorene]-2,2',7,7'-tetramine,  
 N,N,N',N',N'',N'',N''',N''''-octaphenyl- (9CI) (CA INDEX NAME)

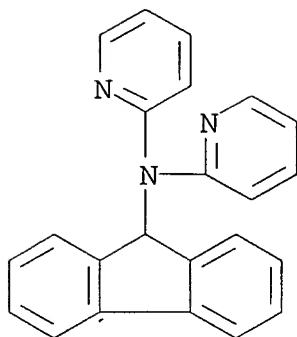


RN 706820-55-5 CAPLUS  
 CN 9,9'-Spirobi[9H-fluorene], 3,3',6,6'-tetrakis(phenylsulfinyl)-  
 (9CI) (CA INDEX NAME)



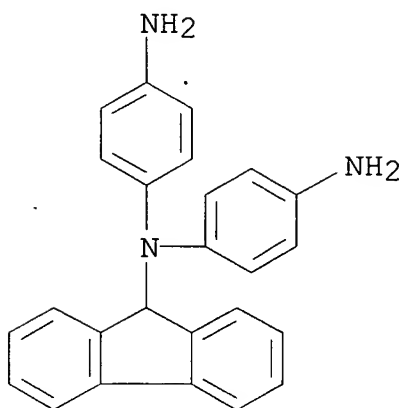
RN 706820-56-6 CAPLUS  
 CN 2-Pyridinamine, N-9H-fluoren-9-yl-N-2-pyridinyl- (9CI) (CA INDEX NAME)

NAME)



RN 706820-57-7 CAPLUS

CN 1,4-Benzenediamine, N-(4-aminophenyl)-N-9H-fluoren-9-yl- (9CI)  
(CA INDEX NAME)



IC ICM C09K011-06

ICS H05B033-14; H01L051-20; H01L051-30; C07F009-02; C07D231-26

CC 73-11 (Optical, Electron, and Mass Spectroscopy and  
Other Related Properties)

Section cross-reference(s): 76, 78

IT Luminescent substances

(electroluminescent; electroluminescent materials and devices  
based on metal complex of 1-Ph-3-Me-4-trimethylacetyl-pyrazol-5-  
one)

IT 66-71-7D, 1,10-Phenanthroline, derivs., metal complexes  
86-74-8D, 9H-Carbazole, derivs., metal complexes 87-01-4D, metal  
complexes 92-83-1D, 9H-Xanthene, derivs., metal complexes  
101-60-0D, 21H,23H-Porphine, derivs., metal complexes 366-18-7D,  
2,2'-Bipyridine, derivs., metal complexes 1013-23-6D, derivs.,



metal complexes 1148-79-4D, 2,2':6',2''-Terpyridine, derivs.,  
metal complexes 2156-69-6D, metal complexes 2325-27-1D,  
derivs., metal complexes 2550-73-4D, derivs., metal complexes  
3878-45-3D, derivs., metal complexes 5521-31-3D, derivs., metal  
complexes 7429-90-5D, Aluminum, compds. 7439-88-5D, Iridium,  
compds. 7439-89-6D, Iron, compds. 7439-92-1D, Lead, compds.  
7439-96-5D, Manganese, compds. 7439-98-7D, Molybdenum, compds.  
7440-02-0D, Nickel, compds. 7440-03-1D, Niobium, compds.  
7440-04-2D, Osmium, compds. 7440-05-3D, Palladium, compds.  
7440-06-4D, Platinum, compds. 7440-16-6D, Rhodium, compds.  
7440-18-8D, Ruthenium, compds. 7440-20-2D, Scandium, compds.  
7440-25-7D, Tantalum, compds. 7440-31-5D, Tin, compds.  
7440-32-6D, Titanium, compds. 7440-36-0D, Antimony, compds.  
7440-43-9D, Cadmium, compds. 7440-47-3D, Chromium, compds.  
7440-48-4D, Cobalt, compds. 7440-55-3D, Gallium, compds.  
7440-56-4D, Germanium, compds. 7440-62-2D, Vanadium, compds.  
7440-65-5D, Yttrium, compds. 7440-67-7D, Zirconium, compds.  
7440-74-6D, Indium, compds. 7664-41-7D, Ammonia, derivs., metal  
complexes 13930-88-6D, compds. 16523-64-1D, metal complexes  
18357-23-8D, metal complexes 19437-26-4D, derivs., metal  
complexes 25540-60-7D, Dihydrogen sulfoxide, derivs., metal  
complexes 26201-32-1D, compds. **42328-93-8D**, derivs.,  
metal complexes 53012-61-6D, derivs., metal complexes  
54888-34-5D, derivs., metal complexes 58328-31-7D, derivs.,  
metal complexes 105389-36-4D, derivs., metal complexes  
123847-85-8D, derivs., metal complexes 142289-08-5D, derivs.,  
metal complexes **189363-47-1D**, derivs., metal complexes  
203642-12-0D, derivs., metal complexes 706820-54-4D,  
Benzo[2,1-b:3,4-b']bisphosphorin, derivs., metal complexes  
**706820-55-5D**, derivs., metal complexes  
**706820-56-6D**, derivs., metal complexes  
**706820-57-7D**, derivs., metal complexes 706820-58-8D,  
derivs., metal complexes 706820-59-9D, derivs., metal complexes  
706820-61-3D, derivs., metal complexes  
(electroluminescent materials and devices based on metal  
complexes)

REFERENCE COUNT: 6 THERE ARE 6 CITED REFERENCES AVAILABLE  
FOR THIS RECORD. ALL CITATIONS AVAILABLE  
IN THE RE FORMAT

L40 ANSWER 16 OF 65 CAPLUS COPYRIGHT 2005 ACS on STN  
ACCESSION NUMBER: 2004:473162 CAPLUS  
DOCUMENT NUMBER: 141:30890  
TITLE: Organic light-emitting  
device using paracyclophane  
INVENTOR(S): Chen, Jian Ping; Ueno, Kazunori; Suzuki,  
Koichi  
PATENT ASSIGNEE(S): Canon Kabushiki Kaisha, Japan

SOURCE: U.S. Pat. Appl. Publ., 20 pp.  
 CODEN: USXXCO  
 DOCUMENT TYPE: Patent  
 LANGUAGE: English  
 FAMILY ACC. NUM. COUNT: 1  
 PATENT INFORMATION:

PATENT NO. -----	KIND ----	DATE -----	APPLICATION NO. -----	DATE
US 2004110027	A1	20040610	US 2002-309116	2002 1204
JP 2004186158	A2	20040702	JP 2003-403751	2003 1202

PRIORITY APPLN. INFO.: US 2002-309116 A  
 2002  
 1204

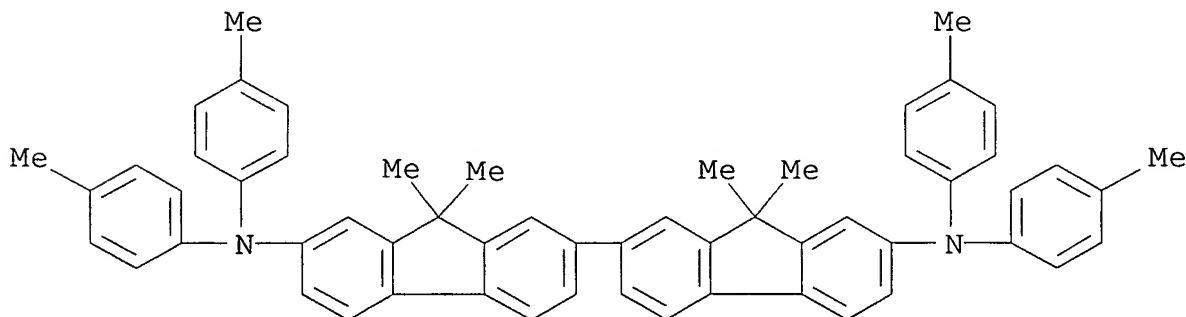
OTHER SOURCE(S): MARPAT 141:30890

AB The invention relates to an organic **light-emitting** device (OLED) in which a paracyclophane or a paracyclophane derivative is used as the emissive **layer** and/or  $\geq 1$  of the charge transport **layers**, or as a host material for  $\geq 1$  of these **layers**.

IT **228871-85-0P**  
 (blue emitter; organic **light-emitting** device using paracyclophane)

RN 228871-85-0 CAPLUS

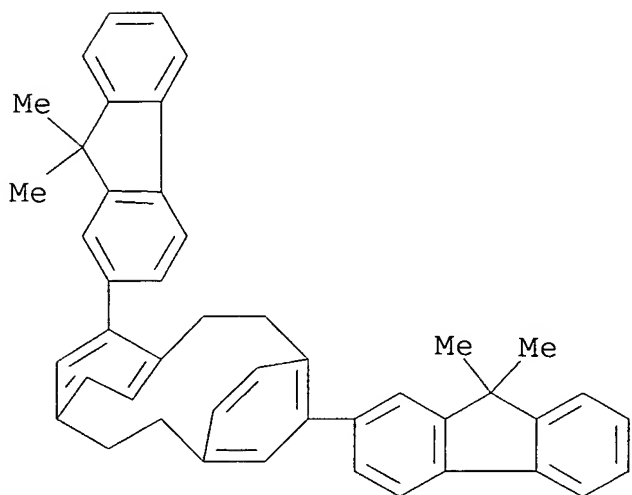
CN [2,2'-Bi-9H-fluorene]-7,7'-diamine, 9,9,9',9'-tetramethyl-N,N,N',N'-tetrakis(4-methylphenyl)- (9CI) (CA INDEX NAME)



IT **699021-15-3P**  
 (organic **light-emitting** device using

paracyclophane)

RN 699021-15-3 CAPLUS

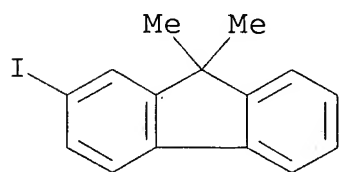
CN Tricyclo[8.2.2.24,7]hexadeca-4,6,10,12,13,15-hexaene,  
5,12-bis(9,9-dimethyl-9H-fluoren-2-yl)- (9CI) (CA INDEX NAME)

IT 144981-85-1 333432-28-3

(organic light-emitting device using  
paracyclophane)

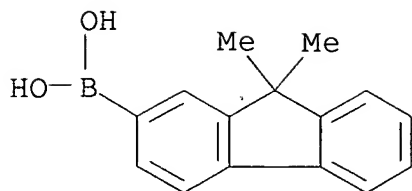
RN 144981-85-1 CAPLUS

CN 9H-Fluorene, 2-iodo-9,9-dimethyl- (9CI) (CA INDEX NAME)



RN 333432-28-3 CAPLUS

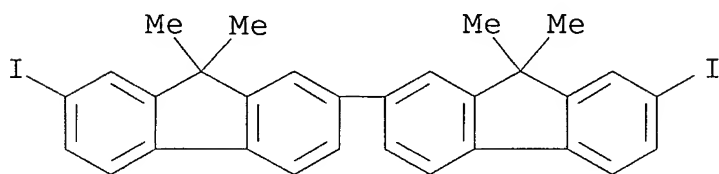
CN Boronic acid, (9,9-dimethyl-9H-fluoren-2-yl)- (9CI) (CA INDEX  
NAME)



IT 400607-26-3P 505078-42-2P  
(organic **light-emitting** device using  
paracyclophane)

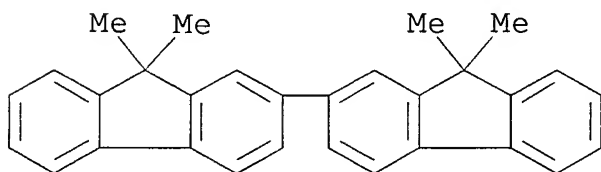
RN 400607-26-3 CAPLUS

CN 2,2'-Bi-9H-fluorene, 7,7'-diiodo-9,9,9',9'-tetramethyl- (9CI) (CA  
INDEX NAME)



RN 505078-42-2 CAPLUS

CN 2,2'-Bi-9H-fluorene, 9,9,9',9'-tetramethyl- (9CI) (CA INDEX NAME)



IC ICM H05B033-12

NCL 428690000; 428917000; 313504000; 313506000

CC 73-11 (**Optical**, Electron, and Mass Spectroscopy and  
Other Related Properties)

ST org **light emitting** device paracyclophane

IT Electroluminescent devices  
(organic **light-emitting** device using  
paracyclophane)

IT Cyclophanes  
(paracyclophanes; organic **light-emitting**  
device using paracyclophane)

IT 228871-85-0P  
(blue emitter; organic **light-emitting** device)

using paracyclophane)  
IT 23927-45-9 136984-20-8  
(organic light-emitting device using  
paracyclophane)  
IT 699021-16-4P  
(organic light-emitting device using  
paracyclophane)  
IT 699021-14-2P 699021-15-3P 699021-17-5P  
(organic light-emitting device using  
paracyclophane)  
IT 620-93-9 5122-94-1 36439-82-4 144981-85-1  
333432-28-3  
(organic light-emitting device using  
paracyclophane)  
IT 400607-26-3P 505078-42-2P  
(organic light-emitting device using  
paracyclophane)

L40 ANSWER 17 OF 65 CAPLUS COPYRIGHT 2005 ACS on STN

ACCESSION NUMBER: 2004:383153 CAPLUS

DOCUMENT NUMBER: 141:303400

TITLE: Cyanocarbazole derivatives for  
high-performance electroluminescent devices

AUTHOR(S): Thomas, K. R. Justin; Velusamy, Marappan; Lin,  
Jiann T.; Tao, Yu-Tai; Chuen, Chang-Hao

CORPORATE SOURCE: Institute of Chemistry, Academia Sinica,  
Taipei, 115, Taiwan

SOURCE: Advanced Functional Materials (2004), 14(4),  
387-392

CODEN: AFMDC6; ISSN: 1616-301X

PUBLISHER: Wiley-VCH Verlag GmbH & Co. KGaA

DOCUMENT TYPE: Journal

LANGUAGE: English

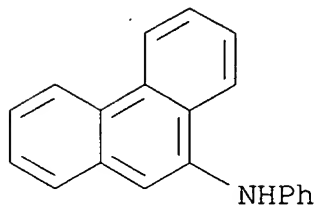
AB 3-Cyano-9-(diarylamino)carbazoles have been synthesized. These  
new compds. emit in the blue to green region. Double-  
**layer** electroluminescent devices using these compds. as  
the hole-transport/emitting materials are highly efficient. Two  
of the compds. can be fabricated into single-**layer**  
devices with good performance. Green- and blue-emitting devices  
with good performance were also fabricated using one of the  
compds. as the hole-injection **layer**.

IT 3920-79-4, (9-Phenanthryl)phenylamine 15424-38-1  
, (9-Anthryl)phenylamine 65838-93-9,  
Phenyl(1-pyrenyl)amine

(catalytic arylation reaction with bromocarbazole derivative;  
cyanocarbazole derivs. for high-performance electroluminescent  
devices)

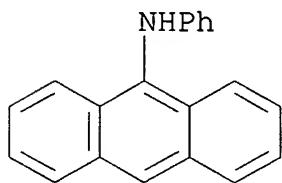
RN 3920-79-4 CAPLUS

CN 9-Phenanthrenamine, N-phenyl- (9CI) (CA INDEX NAME)



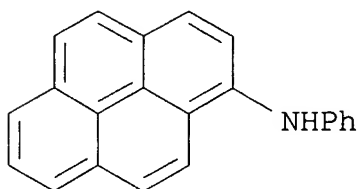
RN 15424-38-1 CAPLUS

CN 9-Anthracenamine, N-phenyl- (9CI) (CA INDEX NAME)



RN 65838-93-9 CAPLUS

CN 1-Pyrenamine, N-phenyl- (9CI) (CA INDEX NAME)

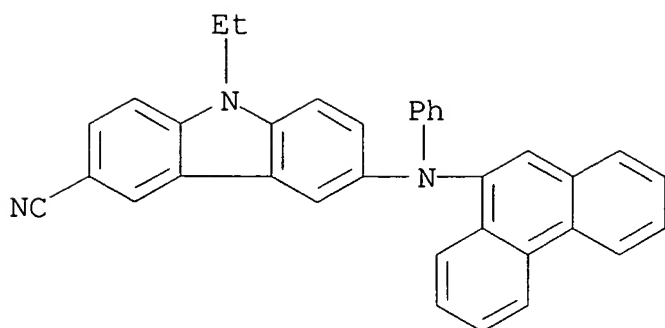


IT 764654-63-9P 764654-64-0P 764654-66-2P

(target cyanocarbazole; cyanocarbazole derivs. for  
high-performance electroluminescent devices)

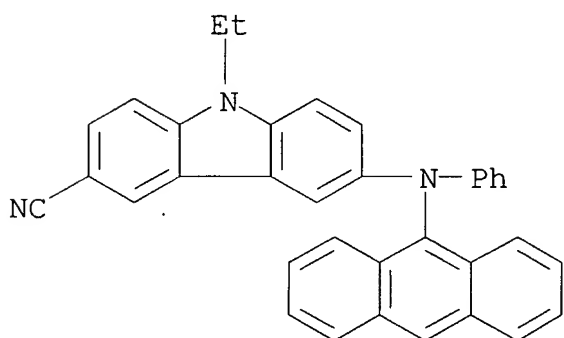
RN 764654-63-9 CAPLUS

CN 9H-Carbazole-3-carbonitrile, 9-ethyl-6-(9-phenanthrenylphenylamino)- (9CI) (CA INDEX NAME)



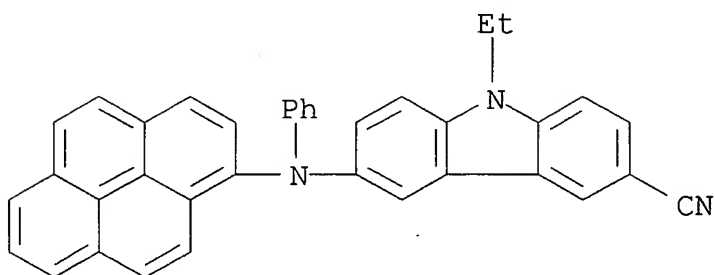
RN 764654-64-0 CAPLUS

CN 9H-Carbazole-3-carbonitrile, 6-(9-anthracenylphenylamino)-9-ethyl-  
(9CI) (CA INDEX NAME)



RN 764654-66-2 CAPLUS

CN 9H-Carbazole-3-carbonitrile, 9-ethyl-6-(phenyl-1-pyrenylamino)-  
(9CI) (CA INDEX NAME)



CC 73-5 (Optical, Electron, and Mass Spectroscopy and Other  
Related Properties)

IT Electric current-potential relationship

Electroluminescent devices

Fluorescence

HOMO (molecular orbital)

LUMO (molecular orbital)

**Luminescence**, electroluminescence

(cyanocarbazole derivs. for high-performance electroluminescent devices)

IT **Luminescent** substances

(electroluminescent; cyanocarbazole derivs. for high-performance electroluminescent devices)

IT 90-30-2, (1-Naphthyl)phenylamine 3920-79-4,

(9-Phenanthryl)phenylamine 15424-38-1,

(9-Anthryl)phenylamine 65838-93-9, Phenyl(1-

pyrenyl)amine 436800-48-5, (9-Ethyl-3-carbazolyl)phenylamine

(catalytic arylation reaction with bromocarbazole derivative; cyanocarbazole derivs. for high-performance electroluminescent devices)

IT 764654-62-8P 764654-63-9P 764654-64-0P

764654-66-2P

(target cyanocarbazole; cyanocarbazole derivs. for high-performance electroluminescent devices)

REFERENCE COUNT: 46 THERE ARE 46 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L40 ANSWER 18 OF 65 CAPLUS COPYRIGHT 2005 ACS on STN

ACCESSION NUMBER: 2004:331637 CAPLUS

DOCUMENT NUMBER: 140:365374

TITLE: Organic light-emitting diode devices with improved operational stability

INVENTOR(S): Jarikov, Viktor V.

PATENT ASSIGNEE(S): Eastman Kodak Company, USA

SOURCE: U.S. Pat. Appl. Publ., 108 pp., Cont.-in-part of U.S. Ser. No. 131,801, abandoned.

CODEN: USXXCO

DOCUMENT TYPE: Patent

LANGUAGE: English

FAMILY ACC. NUM. COUNT: 2

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
-----	----	-----	-----	
US 2004076853	A1	20040422	US 2003-634324	2003 0805
JP 2003347058	A2	20031205	JP 2003-118497	



CN 1453886

A

20031105

CN 2003-124026

2003  
04232003  
0424

PRIORITY APPLN. INFO.:

US 2002-131801

B2

2002  
0424

OTHER SOURCE(S): MARPAT 140:365374

AB Organic **light-emitting** devices which comprise a substrate; an anode and a cathode disposed over the substrate; a **luminescent layer** disposed between the anode and the cathode are described in which the **luminescent layer** includes a host and  $\geq 1$  dopant; the host including a solid organic material comprising a mixture of  $\geq 2$  components including a first component that is an organic compound capable of transporting either electrons and/or holes and of forming both monomer state and an aggregate state and a second component of that is an organic compound that upon mixing with the first host component is capable of forming a continuous and substantially pin-hole-free **layer**, while the dopant of is selected to produce light from the **light-emitting** device. The first component is capable of forming an aggregate state either in the ground electronic state or in an excited electronic state that results in a different absorption or emission spectrum or both relative to the absorption or emission spectrum or both of the monomer state, resp., or of forming an aggregate state whose presence results in a quantum yield of **luminescence** of the monomer state being different relative to the quantum yield of **luminescence** of the monomer state in the absence of the aggregate state. The aggregate state may be crystalline

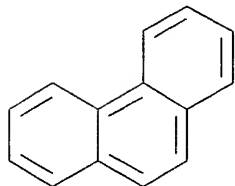
IT 85-01-8, Phenanthrene, uses 85-01-8D, Phenanthrene, derivs. 86-73-7, Fluorene 120-12-7, Anthracene, uses 129-00-0, Pyrene, uses 129-00-0D, Pyrene, derivs. 218-01-9, Chrysene 218-01-9D, Chrysene, derivs. 602-15-3 1055-23-8, 9,9'-Bianthracene 1250-59-5, 2,2'-Bianthracene 1254-43-9 22815-17-4, 2,3,4-Triphenyl-9,9'-spirobifluorene 23102-67-2 26979-27-1 67665-45-6, 9,9'-Spirobi(9H-fluorene)-2,2'-diamine 67665-48-9, 9,9'-Spirobi(9H-fluorene)-2,2'-dicarbonitrile 97083-12-0 122648-99-1 171408-92-7 172285-72-2 186412-15-7 247575-24-2 274905-73-6 363609-60-3 460347-68-6 462104-51-4 473906-55-7 474918-41-7 497157-27-4 503307-40-2

503307-41-3

(organic **light-emitting** diode devices using  
**luminescent** mixts.)

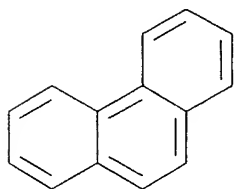
RN 85-01-8 CAPLUS

CN Phenanthrene (6CI, 8CI, 9CI) (CA INDEX NAME)



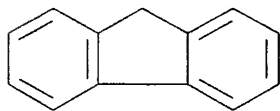
RN 85-01-8 CAPLUS

CN Phenanthrene (6CI, 8CI, 9CI) (CA INDEX NAME)



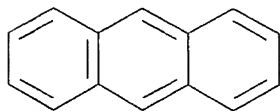
RN 86-73-7 CAPLUS

CN 9H-Fluorene (9CI) (CA INDEX NAME)



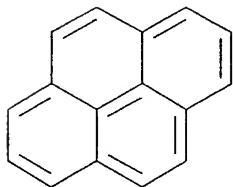
RN 120-12-7 CAPLUS

CN Anthracene (8CI, 9CI) (CA INDEX NAME)



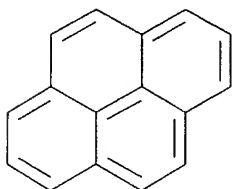
RN 129-00-0 CAPLUS

CN Pyrene (8CI, 9CI) (CA INDEX NAME)



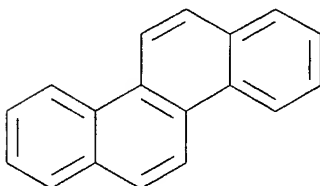
RN 129-00-0 CAPLUS

CN Pyrene (8CI, 9CI) (CA INDEX NAME)



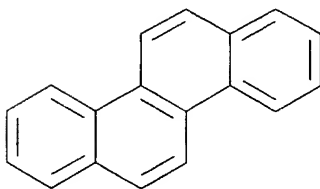
RN 218-01-9 CAPLUS

CN Chrysene (8CI, 9CI) (CA INDEX NAME)



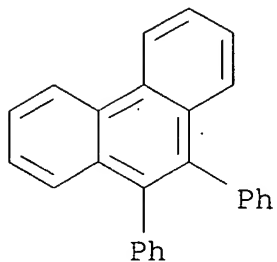
RN 218-01-9 CAPLUS

CN Chrysene (8CI, 9CI) (CA INDEX NAME)



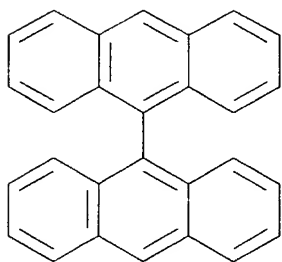
RN 602-15-3 CAPLUS

CN Phenanthrene, 9,10-diphenyl- (7CI, 8CI, 9CI) (CA INDEX NAME)



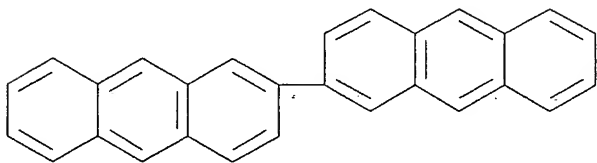
RN 1055-23-8 CAPLUS

CN 9,9'-Bianthrane (9CI) (CA INDEX NAME)



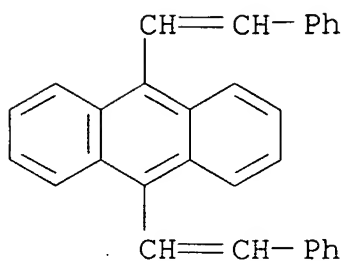
RN 1250-59-5 CAPLUS

CN 2,2'-Bianthrane (9CI) (CA INDEX NAME)



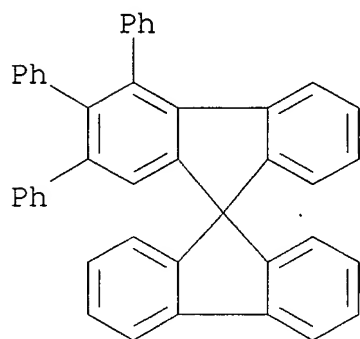
RN 1254-43-9 CAPLUS

CN Anthracene, 9,10-bis(2-phenylethenyl)- (9CI) (CA INDEX NAME)



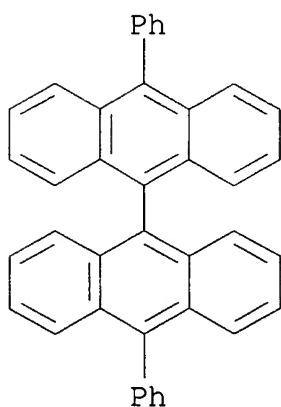
RN 22815-17-4 CAPLUS

CN 9,9'-Spirobi[9H-fluorene], 2,3,4-triphenyl- (9CI) (CA INDEX NAME)



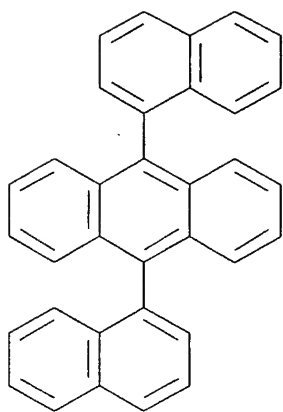
RN 23102-67-2 CAPLUS

CN 9,9'-Bianthracene, 10,10'-diphenyl- (9CI) (CA INDEX NAME)

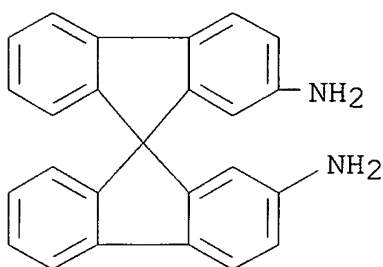


RN 26979-27-1 CAPLUS

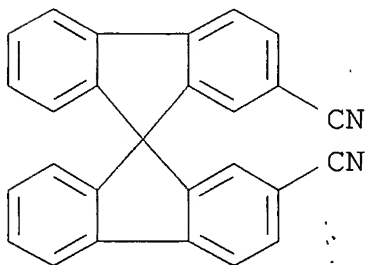
CN Anthracene, 9,10-di-1-naphthalenyl- (9CI) (CA INDEX NAME)



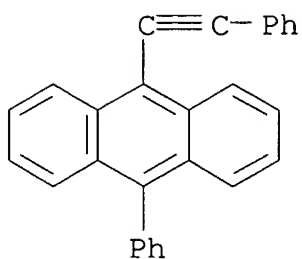
RN 67665-45-6 CAPLUS  
 CN 9,9'-Spirobi[9H-fluorene]-2,2'-diamine (9CI) (CA INDEX NAME)



RN 67665-48-9 CAPLUS  
 CN 9,9'-Spirobi[9H-fluorene]-2,2'-dicarbonitrile (9CI) (CA INDEX NAME)

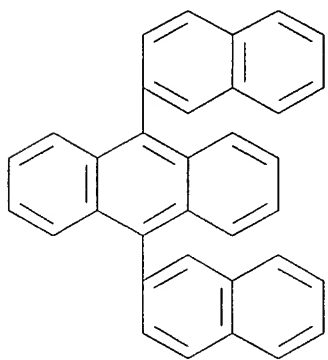


RN 97083-12-0 CAPLUS  
 CN Anthracene, 9-phenyl-10-(phenylethynyl)- (6CI, 7CI, 9CI) (CA INDEX NAME)



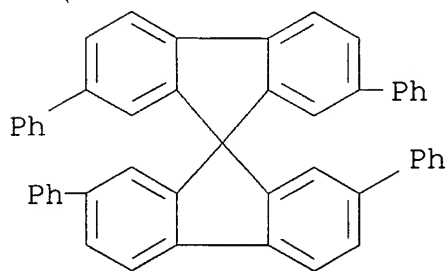
RN 122648-99-1 CAPLUS

CN Anthracene, 9,10-di-2-naphthalenyl- (9CI) (CA INDEX NAME)



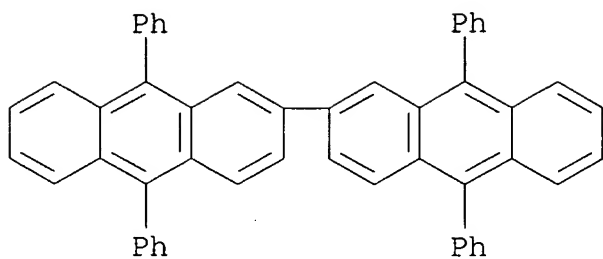
RN 171408-92-7 CAPLUS

CN 9,9'-Spirobi[9H-fluorene], 2,2',7,7'-tetraphenyl- (9CI) (CA INDEX NAME)

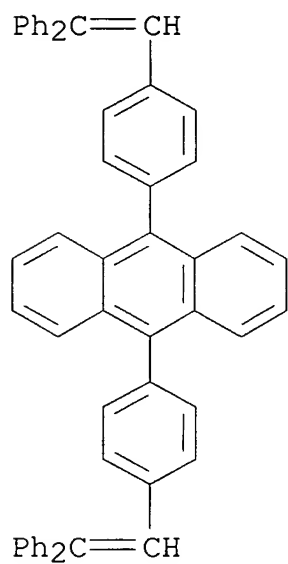


RN 172285-72-2 CAPLUS

CN 2,2'-Bianthracene, 9,9',10,10'-tetraphenyl- (9CI) (CA INDEX NAME)

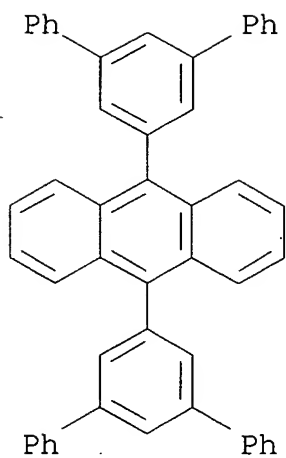


RN 186412-15-7 CAPLUS  
CN Anthracene, 9,10-bis[4-(2,2-diphenylethenyl)phenyl]- (9CI) (CA  
INDEX NAME)



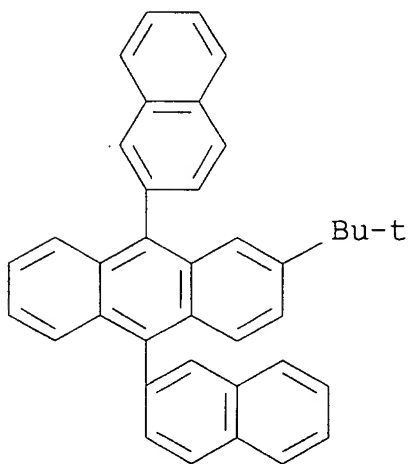
RN 247575-24-2 CAPLUS  
CN Anthracene, 9,10-bis([1,1':3',1''-terphenyl]-5'-yl)- (9CI) (CA  
INDEX NAME)





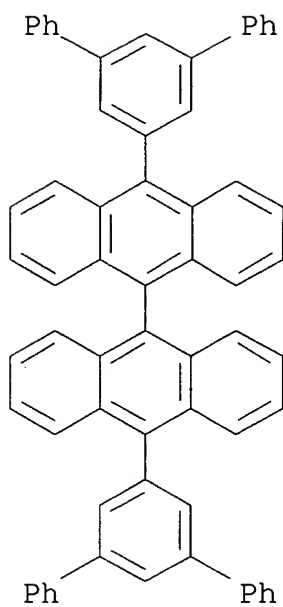
RN 274905-73-6 CAPLUS

CN Anthracene, 2-(1,1-dimethylethyl)-9,10-di-2-naphthalenyl- (9CI)  
(CA INDEX NAME)



RN 363609-60-3 CAPLUS

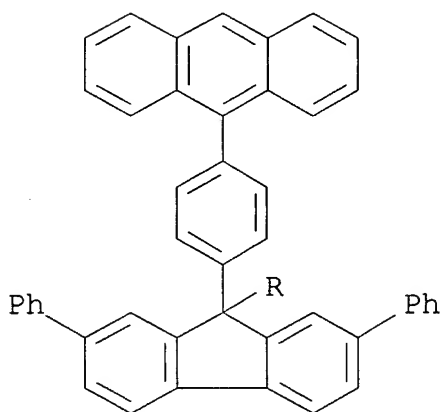
CN 9,9'-Bianthracene, 10,10'-bis([1,1':3',1''-terphenyl]-5'-yl)-  
(9CI) (CA INDEX NAME)



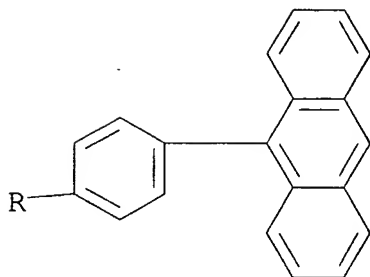
RN 460347-68-6 CAPLUS

CN Anthracene, 9,9'-[(2,7-diphenyl-9H-fluoren-9-ylidene)di-4,1-phenylene]bis- (9CI) (CA INDEX NAME)

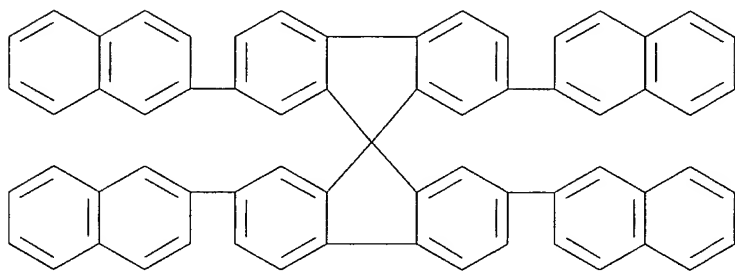
PAGE 1-A



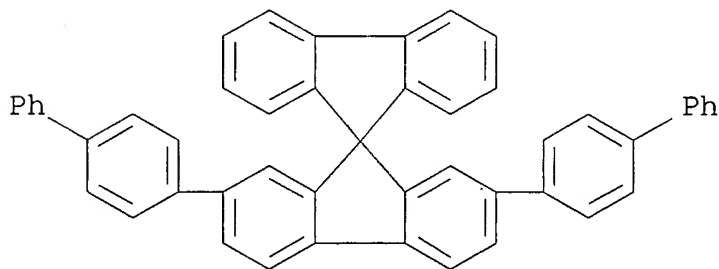
PAGE 2-A



RN 462104-51-4 CAPLUS

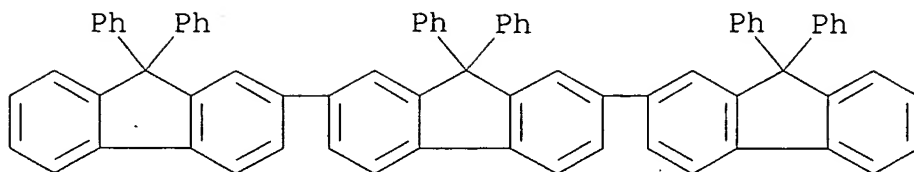
CN 9,9'-Spirobi[9H-fluorene], 2,2',7,7'-tetra-2-naphthalenyl- (9CI)  
(CA INDEX NAME)

RN 473906-55-7 CAPLUS

CN 9,9'-Spirobi[9H-fluorene], 2,7-bis([1,1'-biphenyl]-4-yl)- (9CI)  
(CA INDEX NAME)

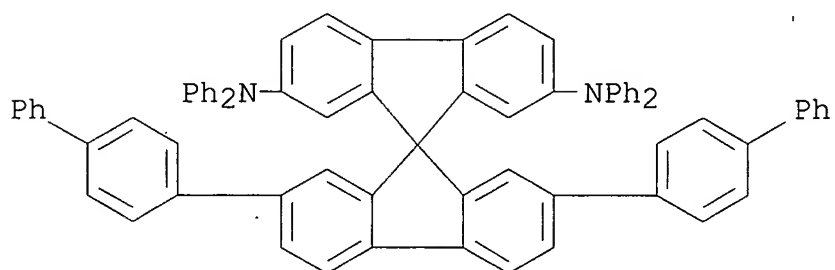
RN 474918-41-7 CAPLUS

CN 2,2':7',2''-Ter-9H-fluorene, 9,9,9',9',9'',9''-hexaphenyl- (9CI)  
(CA INDEX NAME)



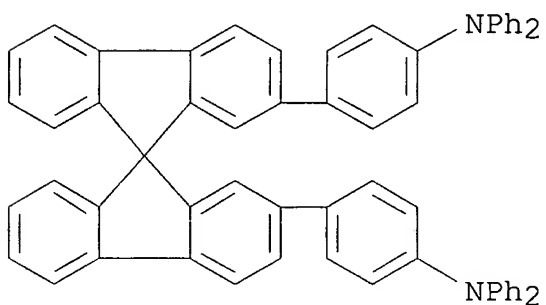
RN 497157-27-4 CAPLUS

CN 9,9'-Spirobi[9H-fluorene]-2,7-diamine, 2',7'-bis([1,1'-biphenyl]-4-yl)-N,N,N',N'-tetraphenyl- (9CI) (CA INDEX NAME)



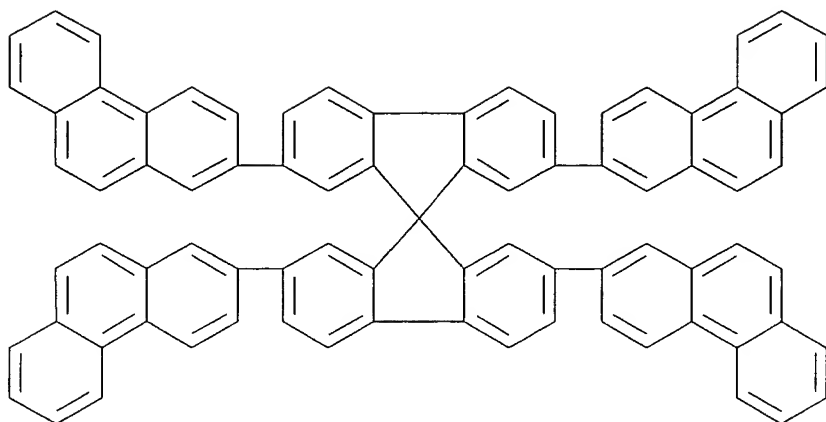
RN 503307-40-2 CAPLUS

CN Benzenamine, 4,4'-(9,9'-spirobi[9H-fluorene]-2,2'-diyl)bis[N,N-diphenyl]- (9CI) (CA INDEX NAME)



RN 503307-41-3 CAPLUS

CN 9,9'-Spirobi[9H-fluorene], 2,2',7,7'-tetra-2-phenanthrenyl- (9CI) (CA INDEX NAME)

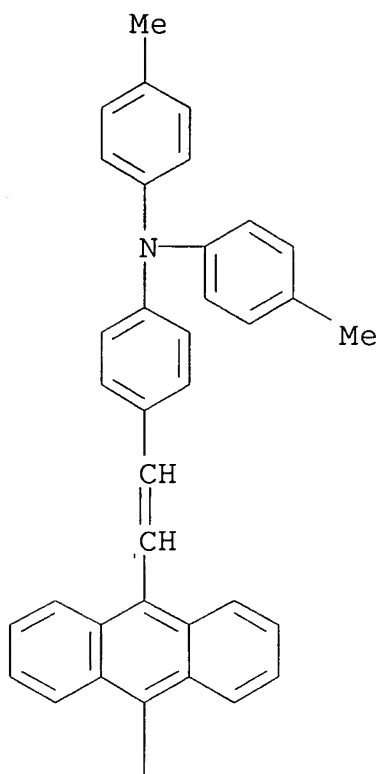


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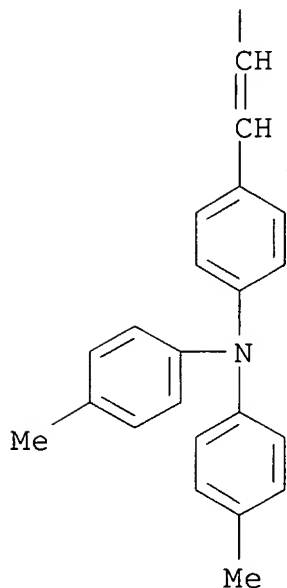
IT      55035-47-7, 9,10-Bis[4-(di-p-tolylamino)styryl]anthracene
        (organic light-emitting diode devices using
        luminescent mixts.)
RN      55035-47-7  CAPLUS
CN      Benzenamine, 4,4'-(9,10-anthracenediyl)di-2,1-ethenediyl)bis[N,N-
        bis(4-methylphenyl)- (9CI)  (CA INDEX NAME)

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PAGE 2-A



- IC ICM H05B033-14  
 NCL 428690000; 428917000; 313504000  
 CC 73-11 (**Optical**, Electron, and Mass Spectroscopy and  
 Other Related Properties)  
 Section cross-reference(s): 25, 27, 28, 76  
 ST org **light emitting** device **luminescent**  
 mixt  
 IT **Luminescent** substances  
 (organic **light-emitting** diode devices using  
**luminescent** mixts.)  
 IT Fluorescent dyes  
 Phosphorescent substances  
 (organic **light-emitting** diode devices using  
**luminescent** mixts. containing)  
 IT Electroluminescent devices  
 (organic; organic **light-emitting** diode devices  
 using **luminescent** mixts.)  
 IT 54811-28-8, 2,9-Diphenylcoronene  
 (2,9-diphenylcoronene; organic **light-emitting**  
 diode devices using **luminescent** mixts.)  
 IT 6542-08-1, 8H-Dibenzo[b,mn]phenanthrene  
 (8H-dibenzo[b,mn]phenanthrene; organic **light-**  
**emitting** diode devices using **luminescent**  
 mixts.)  
 IT 284673-30-9, CFDMQA  
 (CFDMQA; organic **light-emitting** diode devices

using luminescent mixts.)

IT 51325-95-2, DCJ  
(DCJ; organic light-emitting diode devices  
using luminescent mixts.)

IT 159788-00-8, DCJT  
(DCJT; organic light-emitting diode devices  
using luminescent mixts.)

IT 463943-63-7, DCJTBz  
(DCJTBz; organic light-emitting diode devices  
using luminescent mixts.)

IT 200052-72-8, DCJTE  
(DCJTE; organic light-emitting diode devices  
using luminescent mixts.)

IT 213749-94-1, DCJTMes  
(DCJTMes; organic light-emitting diode devices  
using luminescent mixts.)

IT 200052-71-7, DCJTP  
(DCJTP; organic light-emitting diode devices  
using luminescent mixts.)

IT 19205-19-7, DMQA  
(DMQA; organic light-emitting diode devices  
using luminescent mixts.)

IT 682334-88-9, DPMB 1  
(DPMB 1; organic light-emitting diode devices  
using luminescent mixts.)

IT 682334-89-0, DPMB 2  
(DPMB 2; organic light-emitting diode devices  
using luminescent mixts.)

IT 682334-90-3, DPMB 3  
(DPMB 3; organic light-emitting diode devices  
using luminescent mixts.)

IT 175606-05-0  
(Red 2; organic light-emitting diode devices  
using luminescent mixts.)

IT 616235-15-5  
(Yellow green 2; organic light-emitting diode  
devices using luminescent mixts.)

IT 19770-52-6, Benz[d]aceanthrylene  
(benz[d]aceanthrylene; organic light-emitting  
diode devices using luminescent mixts.)

IT 197-67-1, Tetrabenzo[a,fg,ij,o]pentaphene  
(dinaphtho[1,2-b:2',1'-n]perylene; organic light-  
emitting diode devices using luminescent  
mixts.)

IT 196-28-1, Naphtho[1,2-a]pyrene  
(naphtho[1,2-a]pyrene; organic light-emitting  
diode devices using luminescent mixts.)

IT 35699-67-3, Naphtho[8,1,2-ghi]chrysene



(naphtho[1,2-e]pyrene; organic light-emitting diode devices using luminescent mixts.)

IT 50-32-8, Benzo[a]pyrene, uses 53-70-3, 1,2 5,6-Benzanthracene  
 56-55-3, Tetraphene 56-55-3D, Tetraphene, derivs. 66-71-7,  
 1,10-Phenanthroline 71-43-2, [6]Annulene, uses 83-32-9,  
 Acenaphthene 85-01-8, Phenanthrene, uses  
 85-01-8D, Phenanthrene, derivs. 86-73-7,  
 Fluorene 86-74-8, Carbazole 91-20-3, Naphthalene, uses  
 91-22-5, Quinoline, uses 92-24-0, Naphthacene 92-24-0D,  
 Naphthacene, derivs. 92-52-4, Biphenyl, uses 92-82-0,  
 Phenazine 92-83-1, Xanthene 95-13-6, Indene 95-15-8,  
 Benzo[b]thiophene 109-97-7, Pyrrole 110-00-9, Furan  
 110-02-1, Thiophene 110-86-1, Pyridine, uses 119-65-3,  
 Isoquinoline 119-91-5, 2,2'-Biquinoline 120-12-7,  
 Anthracene, uses 120-72-9, Indole, uses 120-73-0, Purine  
 129-00-0, Pyrene, uses 129-00-0D, Pyrene,  
 derivs. 132-64-9, Dibenzofuran 132-65-0, Dibenzothiophene  
 135-48-8, Pentacene 135-48-8D, Pentacene, derivs. 147-14-8,  
 Copper phthalocyanine 165-39-9, Benzo[k]fluorene 187-83-7,  
 [6]Helicene 187-94-0, 3.4,11.12-Dibenzobisanthene 187-95-1,  
 Perylo[3,2,1,12-pqgrab]perylene 188-00-1,  
 Dibenzo[fg,ij]phenanthro[9,10,1,2,3-pqrst]pentaphene 188-11-4,  
 Benzo[pqr]dinaphtho[8,1,2-bcd:2',1',8'-lmn]perylene 188-13-6,  
 Tetrabenzo[de,h,kl,rst]pentaphene 188-16-9, 2,12-  
 Dioxadibenzo[jk,uv]biscyclopenta[3,4]naphtho[2,1,8,7-  
 defg:2',1',8',7'-opqr]pentacene 188-42-1, Naphthaceno[2,1,12,11-  
 opqra]naphthacene 188-50-1, peri-Naphthacenonaphthacene  
 188-51-2, Benzo[2,1-a:3,4-a']dianthracene 188-52-3,  
 Dibenzo[c,g]phenanthrene 188-67-0, Dibenzo[f,j]picene  
 188-69-2, 11H-Indeno[1,2-a]triphenylene 188-72-7, Terrylene  
 188-73-8, Quatterylene 188-84-1, Benzo[rst]phenanthro[10,1,2-  
 cde]pentaphene 188-87-4, Anthra[9,1,2-cde]benzo[rst]pentaphene  
 188-89-6, Naphtho[8,1,2-bcd]perylene 188-90-9,  
 Dinaphtho[2,1,8,7-defg:2',1',8',7'-ijkl]pentaphene 188-91-0,  
 Dinaphtho[2,1,8,7-defg:2',1',8',7'-opqr]pentacene 188-94-3,  
 Periflanthene 188-96-5, Peropyrene 188-96-5D, Peropyrene,  
 derivs. 189-01-5, Aceperylene 189-18-4, Benzo[a]naphtho[2,1-  
 h]pyrene 189-52-6, Anthra[2,1,9-gra]naphthacene 189-55-9,  
 Benzo[rst]pentaphene 189-64-0, Dibenzo[b,def]chrysene  
 189-71-9, 8H-Dibenzo[b,fg]pyrene 189-73-1, 6H-Naphtho[1,2,3-  
 cd]pyrene 189-96-8, Benzo[pqr]picene 190-01-2,  
 Benzo[a]naphtho[8,1,2-lmn]naphthacene 190-05-6,  
 Benzo[a]naphtho[2,1,8-hij]naphthacene 190-12-5,  
 1H-Indeno[6,7,1-mna]anthracene 190-24-9,  
 1.12,2.3,4.5,6.7,8.9,10.11-Hexabenzocoronene 190-24-9D,  
 Hexabenzobc,ef,hi,kl,no,qr]coronene, derivs. 190-25-0,  
 Tetrabenzo[gh,jk,tu,wx]pyranthrene 190-26-1, Ovalene 190-28-3,  
 Phenanthro[3,4,5,6-bcdef]ovalene 190-31-8, 1.14-Benzobisanthene

190-36-3, o-meso-Benzodianthrene 190-39-6, Phenanthro[1,10,9,8-opqra]perylene 190-47-6, Dinaphtho[8,1,2-abc:8',1',2'-jkl]coronene 190-55-6, Dibenzo[bc,kl]coronene 190-61-4, 8H-Tribenzo[a,cd,l]pyrene 190-66-9, Dibenzo[a,g]coronene 190-70-5, Benzo[a]coronene 190-70-5D, Benzo[a]coronene, derivs. 190-71-6, Benzo[pqr]naphtho[8,1,2-bcd]perylene 190-72-7, Dibenzo[a,j]coronene 190-74-9, Naphtho[2,3-a]coronene 190-81-8, Tribenzo[b,n,pqr]perylene 190-81-8D, Tribenzo[b,n,pqr]perylene, derivs. 190-84-1, Naphtho[1,2,3,4-ghi]perylene 190-87-4, Benzo[qr]naphtho[2,1,8,7-fghi]pentacene 190-88-5, Benzo[ghi]cyclopenta[cd]perylene 190-89-6, Diphenanthro[5,4,3-abcd:5',4',3'-jklm]perylene 190-90-9, Benzo[rs]dinaphtho[2,1,8,7-klmn:3',2',1',8',7'-vwxyz]hexaphene 190-93-2, Benzo[rst]phenanthro[1,10,9-cde]pentaphene 190-95-4, Dibenzo[b,pqr]perylene 191-03-7, Tetrabenzo[a,f,j,o]perylene 191-06-0, Dibenzo[lm,yz]pyranthrene 191-07-1, Coronene 191-07-1D, Coronene, derivs. 191-12-8, Benzo[a]pyranthrene 191-13-9, Pyranthrene 191-13-9D, Pyranthrene, derivs. 191-20-8, Naphtho[1,2,3,4-rst]pentaphene 191-23-1, Diindeno[1,2,3-cd:1',2',3'-jk]pyrene 191-24-2, Benzo[ghi]perylene 191-24-2D, Benzo[ghi]perylene, derivs. 191-26-4, Anthanthrene 191-26-4D, Anthanthrene, derivs. 191-29-7, Dibenzo[a,f]perylene 191-30-0, Dibenzo[def,p]chrysene 191-32-2, 2H-Benzo[cd]pyrene 191-33-3, 6H-Benzo[cd]pyrene 191-34-4, 5H-Benzo[cd]pyrene 191-35-5, 3H-Benzo[cd]pyrene 191-46-8, Dibenzo[a,rst]naphtho[8,1,2-cde]pentaphene 191-48-0, Decacyclene 191-53-7, Tetrabenzo[a,cd,j,lm]perylene 191-67-3, Naphtho[1,2-g]chrysene 191-68-4, Dibenzo[a,c]triphenylene 191-79-7, Tetrabenzo[de,hi,op,st]pentacene 191-81-1, Dibenzo[a,n]perylene 191-82-2, Dinaphtho[2,1-a:2',1'-j]perylene 191-85-5, Benzo[a]perylene 191-87-7, Dibenzo[a,j]perylene 192-11-0, Ceranthrene 192-28-9, Benz[a]acephenanthrylene 192-35-8, Fluoreno[3,2,1,9-defg]chrysene 192-42-7, Isorubicene 192-47-2, Dibenzo[h,rst]pentaphene 192-51-8, Dibenzo[fg,op]naphthacene 192-51-8D, Dibenzo[fg,op]naphthacene, derivs. 192-57-4D, Tetrabenzo[fg,lm,uv,abl]heptacene, derivs. 192-58-5, Tetrabenzo[a,c,hi,qr]pentacene 192-58-5D, Tetrabenzo[a,c,hi,qr]pentacene, derivs. 192-65-4, Dibenzo[a,e]pyrene 192-70-1, Benzo[a]naphtho[8,1,2-cde]naphthacene 192-77-8, 9H-Benz[4,5]indeno[2,1-c]phenanthrene 192-84-7, 9H-Benz[5,6]indeno[2,1-c]phenanthrene 192-87-0, 9H-Indeno[2,1-c]phenanthrene 192-89-2, Benz[a]indeno[5,6-g]fluorene 192-97-2, Benzo[e]pyrene 193-09-9, Naphtho[2,3-e]pyrene 193-11-3, Dibenzo[de,uv]pentacene 193-21-5, Acenaphtho[1,2-j]fluoranthene 193-39-5, Indeno[1,2,3-cd]pyrene 193-43-1, Indeno[1,2,3-cd]fluoranthene 193-69-1, 1H-Benz[fg]aceanthrylene 193-98-6, Naphth[2,1,8-def]isoquinoline 194-00-3,

Benzo[lmn][3,8]phenanthroline 194-03-6, Thebenidine 194-27-4,  
5H-Benz[fg]acenaphthylene 194-45-6, Dinaphtho[1',2':2,3;  
2'',1'':10,11]perlylo[1,12]furan 194-58-1, 7H-  
Dibenzo[c,g]fluorene 194-59-2, 7H-Dibenzo[c,g]carbazole  
194-63-8, Dinaphtho[2,1-b:1',2'-d]furan 194-69-4,  
Benzo[c]chrysene 194-83-2, 7H-Dibenz[a,kl]anthracene 194-84-3,  
1H-Dibenz[a,kl]anthracene 194-85-4, 4H-Dibenz[a,kl]anthracene  
195-00-6, Anthra[1,2-a]anthracene 195-06-2,  
Dibenzo[b,g]phenanthrene 195-19-7, Benzo[c]phenanthrene  
195-88-0, Anthra[9,1-bc]fluorene 195-90-4, 6H-  
Cyclopenta[ghil]picene 196-36-1, 11H-Indeno[2,1-a]pyrene  
196-42-9, Naphtho[2,3-a]pyrene 196-45-2, Naphtho[2,1,8-  
uva]pentacene 196-46-3, Naphtho[2,1,8-yya]hexacene 196-52-1,  
Dibenzo[c,p]chrysene 196-62-3, Dinaphth[2,3-a,2',3'-c]anthracene  
196-64-5, Naphtho[2,3-g]chrysene 196-77-0,  
Benzo[def]cyclopenta[hi]chrysene 196-78-1, Benzo[g]chrysene  
196-87-2, 11H-Cyclopenta[a]triphenylene 197-61-5, Rubicene  
197-61-5D, Rubicene, derivs. 197-69-3, Dibenzo[b,n]perylene  
197-79-5, 13H-Benzo[b]cyclopenta[def]triphenylene 198-08-3,  
7H-Indeno[1,2-a]phenanthrene 198-19-6, Indeno[1,2-a]phenalene  
198-30-1, 13H-Dibenzo[b,mn]phenanthrene 198-40-3,  
4H-Dibenzo[a,de]naphthacene 198-45-8, 4H-Dibenzo[a,de]pentacene  
198-46-9, Benzo[de]cyclopent[a]anthracene 198-56-1,  
Phenaleno[1,2,3-de]quinoline 198-65-2, Benzo[1,2,3-de:4,5,6-  
d'e']diquinoline 198-88-9, Benzo[1,2-b:3,4-b']bisbenzofuran  
198-93-6, Fluoreno[3,4-b]fluorene 198-95-8, 8H-Indeno[1,2-  
a]anthracene 199-21-3, Benz[a]indeno[1,2-c]fluorene 199-54-2,  
Benz[e]aceanthrylene 199-95-1, 1H-Benz[de]anthracene 200-63-5,  
Benzo[fg]cyclopent[a]anthracene 200-71-5, Indeno[2,1-a]phenalene  
201-27-4, Naphth[1,2-k]acephenanthrylene 201-42-3,  
13H-Acenaphtho[1,8-ab]phenanthrene 201-50-3,  
15H-Benz[4,5]indeno[1,2-l]phenanthrene 201-65-0,  
13H-Dibenzo[a,c]fluorene 201-72-9, Benz[c]indeno[2,1-a]fluorene  
202-03-9, Aceanthrylene 202-33-5, Benz[j]aceanthrylene  
202-94-8, 11H-Benz[bc]aceanthrylene 202-98-2,  
4H-Cyclopenta[def]chrysene 203-06-5, Anthra[1,2-a]aceanthrylene  
203-07-6, Dibenz[a,l]aceanthrylene 203-11-2,  
Indeno[1,2,3-fg]naphthacene 203-12-3, Benzo[ghi]fluoranthene  
203-13-4, Benz[mno]aceanthrylene 203-18-9,  
Dibenzo[j,l]fluoranthene 203-20-3, 15,16-  
Benzodehydrocholanthrene 203-21-4, Anthra[2,1-a]aceanthrylene  
203-25-8, Dibenzo[b,ghi]fluoranthene 203-33-8,  
Benz[a]aceanthrylene 203-64-5, Benzo[def]fluorene 203-80-5,  
Phenalene 204-89-7, 7H-Dibenzo[b,g]fluorene 204-91-1,  
Dinaphtho[2,1-b:2',3'-d]furan 205-12-9, 7H-Benzo[c]fluorene  
205-25-4, 7H-Benzo[c]carbazole 205-82-3, 7,8-Benzfluoranthene  
205-83-4, Acenaphth[1,2-a]anthracene 205-97-0,  
Dibenzo[b,k]fluoranthene 205-99-2, 3,4-Benz[e]acephenanthrylene

206-06-4, Dibenz[e,k]acephenanthrylene 206-44-0, Fluoranthene  
 206-44-0D, Fluoranthene, derivs. 207-02-3, Acenaphtho[1,2-  
 k]fluoranthene 207-08-9, Benzo[k]fluoranthene 207-18-1,  
 Acenaphth[1,2-b]anthracene 207-83-0, 13H-Dibenzo[a,g]fluorene  
 208-37-7, Benzo[1,2-b:4,5-b']bisbenzofuran 208-96-8,  
 Acenaphthylene 210-65-1, as-Indacene 211-91-6,  
 Benz[1]aceanthrylene 212-41-9, Benz[k]acephenanthrylene  
 212-54-4, 13H-Indeno[1,2-c]phenanthrene 213-44-5,  
 Dibenzo[b,n]picene 213-46-7, Picene 213-46-7D, Picene, derivs.

(organic **light-emitting** diode devices using  
**luminescent** mixts.)

IT 213-51-4, Benzo[h]naphtho[1,2-c]cinnoline 214-13-1,  
 Dinaphtho[1,2-b:1',2'-k]chrysene 214-15-3, Benzo[b]naphtho[1,2-  
 k]chrysene 214-16-4, Anthra[2,1-a]naphthacene 214-17-5,  
 Benzo[b]chrysene 214-63-1, Dibenzo[de,mn]naphthacene 214-91-5,  
 Benzo[h]pentaphene 215-11-2, Phenanthro[9,10-b]triphenylene  
 215-11-2D, Phenanthro[9,10-b]triphenylene, derivs. 215-12-3,  
 Tetrabenz[a,c,h,j]acridine 215-14-5, Phenanthrazine 215-26-9,  
 Naphtho[1,2-b]triphenylene 215-58-7, Benzo[b]triphenylene  
 215-58-7D, Benzo[b]triphenylene, derivs. 215-62-3,  
 Dibenz[a,c]acridine 215-95-2, Tetrabenz[a,c,j,l]naphthacene  
 215-96-3, Tribenzo[a,c,j]naphthacene 216-00-2,  
 Dibenzo[a,c]naphthacene 216-07-9, Tetrabenz[a,c,l,n]pentacene  
 216-08-0, Dibenzo[a,c]pentacene 216-48-8,  
 Benz[j]acephenanthrylene 216-53-5, 7H-Benzo[hi]chrysene  
 216-54-6, 4H-Benzo[hi]chrysene 217-37-8, Benzo[c]picene  
 217-42-5, Benzo[b]picene 217-54-9, Anthraceno[2,1-a]anthracene  
 217-59-4, Triphenylene 217-59-4D, Triphenylene, derivs.  
 217-65-2, Dibenzo[f,h]quinoline 217-68-5,  
 Dibenzo[f,h]quinoxaline 217-73-2, Benzo[f][1,10]phenanthroline  
 217-88-9, Pyrido[2,3-f][1,7]phenanthroline 218-01-9,  
 Chrysene 218-01-9D, Chrysene, derivs. 218-16-6,  
 Benzo[i]phenanthridine 218-38-2, Benzo[c]phenanthridine  
 219-07-8, 15H-Cyclopenta[a]phenanthrene 219-08-9,  
 17H-Cyclopenta[a]phenanthrene 220-77-9, Naphtho[1,2-b]chrysene  
 220-78-0, Phenanthro[1,2-b]chrysene 220-82-6,  
 Naphtho[2,1-a]naphthacene 220-97-3, 11H-Indeno[2,1-  
 a]phenanthrene 221-15-8, Fluoreno[2,1-a]fluorene 222-51-5,  
 Dibenzo[c,m]pentaphene 222-54-8, Benzo[c]pentaphene 222-58-2,  
 Naphtho[2,3-c]pentaphene 222-75-3, Heptaphene 222-78-6,  
 Hexaphene 222-78-6D, Hexaphene, derivs. 222-81-1,  
 Benzo(p)hexaphene 222-88-8, Cyclopent[i]indeno[5,6-a]anthracene  
 222-93-5, Pentaphene 222-93-5D, Pentaphene, derivs. 223-20-1,  
 Dibenzo[b,j][1,10]phenanthroline 223-31-4, 13H-Indeno[2,1-  
 a]anthracene 223-66-5, Fluoreno[2,3-a]fluorene 224-03-3,  
 8H-Cyclopenta[b]phenanthrene 224-41-9, Dibenz[a,j]anthracene  
 224-42-0, Dibenz[a,j]acridine 224-53-3, Dibenz[c,h]acridine  
 224-56-6, Dibenzo[a,j]phenazine 224-89-5, Naphtho[1,2-

g]quinoline 225-06-9, Benzo[b]phenanthridine 225-07-0,  
Dibenzo[c,g]cinnoline 225-11-6, Benz[a]acridine 225-51-4,  
Benz[c]acridine 225-87-6, Benzo[b][1,10]phenanthroline  
226-36-8, Dibenz[a,h]acridine 226-47-1, Dibenzo[a,h]phenazine  
226-78-8, 9H-Benzo[a]cyclopent[i]anthracene 226-86-8,  
Dibenzo[a,l]naphthacene 226-88-0, Benzo[a]naphthacene  
226-92-6, Dibenz[a,i]acridine 226-98-2, Dibenzo[a,i]phenazine  
227-04-3, Dibenz[a,j]naphthacene 227-07-6,  
Dibenzo[a,n]pentacene 227-09-8, Dibenzo[a,l]pentacene  
227-50-9, 1H-Cyclopent[a]anthracene 229-15-2,  
7H-Benzo[de]pentacene 229-67-4, Benz[f]isoquinoline 229-71-0,  
Benz[h]isoquinoline 229-87-8, Phenanthridine 230-07-9,  
4,7-Phenanthroline 230-17-1, Benzo[c]cinnoline 230-45-5,  
1,9-Phenanthroline 230-46-6, 1,7-Phenanthroline 230-51-3,  
Benzo[h]-1,6-naphthyridine 232-54-2, 1H-Benz[e]indene  
232-55-3, 3H-Benz[e]indene 235-91-6, 2H-  
Cyclopenta[l]phenanthrene 235-92-7, 1H-Cyclopenta[l]phenanthrene  
236-09-9, Phenanthro[9,10-d]oxazole 238-04-0,  
Acenaphtho[1,2-b]phenanthrene 238-84-6, 11H-Benzo[a]fluorene  
239-01-0, 11H-Benzo[a]carbazole 239-30-5, Benzo[b]naphtho[2,1-  
d]furan 239-60-1, 13H-Dibenzo[a,i]fluorene 239-64-5,  
13H-Dibenzo[a,i]carbazole 239-69-0, Dinaphtho[1,2-b:2',1'-  
d]furan 239-85-0, 13H-Dibenzo[a,h]fluorene 239-90-7,  
Dinaphtho[1,2-b:2',3'-d]furan 239-98-5, Benzo[a]pentacene  
240-04-0, Benzo[a]hexacene 240-44-8, 1H-  
Benzo[a]cyclopent[h]anthracene 241-28-1, 8H-Indeno[2,1-  
b]phenanthrene 242-47-7, 12H-Dibenzo[b,h]fluorene 242-51-3,  
Dinaphtho[2,3-b:2',3'-d]furan 243-17-4, 11H-Benzo[b]fluorene  
243-42-5, Benzo[b]naphtho[2,3-d]furan 248-83-9,  
12H-Indeno[1,2-b]phenanthrene 248-93-1, 13H-Indeno[1,2-  
b]anthracene 250-25-9, Pentalene 253-66-7, Cinnoline  
253-69-0, 1,7-Naphthyridine 253-72-5, 1,6-Naphthyridine  
253-82-7, Quinazoline 254-18-2, Benzoxazine 254-60-4,  
1,8-Naphthyridine 254-79-5, 1,5-Naphthyridine 257-81-8,  
Naphtho[2,3-g]quinoline 257-89-6, Benz[b]acridine 257-95-4,  
Dibenzo[b,g][1,8]naphthyridine 257-96-5,  
Dibenzo[b,g][1,5]naphthyridine 257-97-6, Benzo[b]phenazine  
258-31-1, Hexacene 258-31-1D, Hexacene, derivs. 258-33-3,  
Octacene 258-36-6, Nonacene 258-38-8, Heptacene 259-06-3,  
1H-Cyclopent[b]anthracene 259-14-3, Anthra[2,3-d]oxazole  
260-32-2, Benz[g]isoquinoline 260-36-6, Benzo[g]quinoline  
260-38-8, Benzo[g]quinazoline 260-94-6, Acridine 267-21-0,  
s-Indacene 268-40-6, 1H-Benz[f]indene 270-75-7, Isobenzofuran  
270-82-6, Benzo[c]thiophene 271-30-7, Pyrano[3,4-b]pyrrole  
271-44-3, Indazole 271-89-6, Benzofuran 273-53-0, Benzoxazole  
288-13-1, Pyrazole 288-14-2, Isoxazole 288-16-4, Isothiazole  
288-21-1, 5H-1,2-Oxathiole 288-26-6, 1,2-Dithiole 288-32-4,  
Imidazole, uses 288-37-9, 1,2,5-Oxadiazole 288-42-6, Oxazole

288-47-1, Thiazole 288-49-3, 5H-1,2,5-Oxathiazole 288-67-5,  
1,3-Oxathiole 288-74-4, 1,3-Dithiole 288-88-0,  
1H-1,2,4-Triazole 288-90-4, 1,2,4-Oxadiazole 288-98-2,  
3H-1,2,4-Dioxazole 288-99-3, 1,3,4-Oxadiazole 289-00-9,  
1,2,3,4-Oxatriazole 289-02-1, 1,4,2-Dioxazole 289-80-5,  
Pyridazine 289-95-2, Pyrimidine 289-96-3, 1,2,3-Triazine  
290-37-9, Pyrazine 290-38-0, 1,2,4-Triazine 290-87-9,  
1,3,5-Triazine 313-65-5, Dibenzo[ij,rst]phenanthro[9,10,1,2-  
defg]pentaphene 313-65-5D, derivs. 313-66-6,  
Naphtho[2,1-a]perylene 313-80-4, Naphtho[2,1,8-def]quinoline  
313-97-3, Dibenzo[fg,st]hexacene 314-51-2,  
Dibenzo[a,f]fluoranthene 333-84-6, 1,2,3,5-Oxatriazole  
385-14-8, Benzo(p)naphtho[1,8,7-ghi]chrysene 477-75-8,  
Triptycene 479-23-2, Cholanthrene 548-35-6 **602-15-3**  
668-30-4, Dibenzo[b,mno]fluoranthene 735-72-8,  
2,2'-Biquinazoline **1055-23-8**, 9,9'-Bianthracene  
1065-80-1, Hexabenzocoronene 1065-80-1D, Hexabenzocoronene,  
derivs. **1250-59-5**, 2,2'-Bianthracene **1254-43-9**  
2085-33-8, Tris(8-hydroxyquinolinato)aluminum 2828-72-0,  
Benzo[vwx]hexaphene 2997-45-7, Dibenz[a,e]acephenanthrylene  
4430-29-9, Isoviolanthrene 4552-79-8 5385-22-8,  
Dibenzo[b,j]fluoranthene 5385-75-1, Dibenz[a,e]aceanthrylene  
5821-51-2, Corannulene 5834-20-8, 3-Phenyldibenzofuran  
5869-17-0, Anthra[2,3-a]coronene 5869-30-7,  
Dibenzo[b,ghi]perylene 5869-31-8, Benzo[uv]naphtho[2,1,8,7-  
defg]pentacene 6208-20-4, Benzo[cd]naphtho[3,2,1,8-pqra]perylene  
6232-48-0, Acephenanthrene 6596-37-8, Dibenzo[a,ghi]perylene  
6596-38-9, Naphtho[5,4,3-abc]coronene 7689-57-8,  
Benzo[a]pentaphene 11057-45-7, Benzoperylene 11057-45-7D,  
Benzoperylene, derivs. 11068-27-2, Binaphthyl 13109-47-2,  
Dibenzo[c,m]picene 13227-55-9, Dibenzo[a,j]difluoreno[2,1,9-  
cde:2',1',9'-lmn]perylene 13354-54-6, Dibenzo[b,tuv]naphtho[2,1-  
m]picene 13978-85-3, Bis(8-hydroxyquinolinato)zinc 14147-38-7,  
Dibenzo[de,st]pentacene 14258-76-5, Benzo[st]naphtho[2,1,8,7-  
defg]pentacene 14406-92-9 14514-42-2, Tris(8-  
hydroxyquinolinato)indium 14642-34-3, Tris(8-  
hydroxyquinolinato)gallium 14752-00-2, Tris(4-methyl-8-  
hydroxyquinolinato)aluminum 14855-54-0 15209-78-6,  
Dicyclopenta[a,c]naphthacene 15956-38-4, Tris(8-  
hydroxyquinolinato)scandium 16683-64-0,  
Cyclopenta[de]naphthacene 16683-65-1, Cyclopenta[de]pentacene  
16683-71-9, Indeno[7,1-ab]naphthacene 16842-52-7 16914-68-4,  
Dinaphtho[2,1'-c 1',2'-g]phenanthrene 17509-71-6, Isotruxene  
18417-86-2, Indeno[1,7a-a]phenanthrene 18429-26-0,  
Benzo[a]naphth[1,2-h]anthracene 19301-88-3, Naphtho[2,1,8-  
fgh]pentaphene 20495-12-9, Naphtho[2,1-c:7,8-c']diphenanthrene  
20495-14-1, Diphenanthro[3,4-c:4',3'-g]phenanthrene 20495-15-2,  
Dinaphth[1,2-a:1',2'-h]anthracene 22176-87-0,

Anthra[2,1,9,8-stuva]benzo[op]naphtho[2,1,8,7-hijk]pentacene  
 22815-17-4, 2,3,4-Triphenyl-9,9'-spirobifluorene  
 22815-21-0, 4'-Phenylspiro[fluorene-9,6'-[6H]indeno[1,2-  
 j]fluoranthene] 23102-67-2 23992-32-7,  
 4H-Cyclopenta[def]triphenylene 24754-03-8, Fluorantheno[8,9-  
 b]triphenylene 24930-41-4, Naphth[2,1,8-mna]acridine  
 24969-55-9, 11,11'-Spirobi[11H-benzo[b]fluorene] 24976-60-1,  
 as-Indaceno[2,3-a]phenanthrene 25732-74-5, 3,4-  
 Dihydrocyclopenta[cd]pyrene

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IT 26140-60-3, Terphenyl 26979-27-1 27070-49-1,  
 1,2,3-Triazole 27208-37-3, Acepyrene 27706-08-7,  
 Benzo[de]cyclopent[b]anthracene 27798-46-5, Benzo[c]naphtho[2,1-  
 p]chrysene 30777-18-5, Benzo[a]fluorene 30909-04-7,  
 Acenaphtho[1,2-k]cyclopenta[cd]fluoranthene 31124-69-3,  
 Phenanthro[3,4-c]chrysene 31125-12-9, Benzo[ghi]naphtho[1,2-  
 b]perylene 31540-94-0, Benzo[s]picene 31541-02-3,  
 Benzo[h]naphtho[1,2,3,4-rst]pentaphene 31541-07-8,  
 Anthra[1,2,3,4-rst]pentaphene 32881-40-6, Benz[de]indeno[2,1-  
 b]anthracene 34814-80-7D, derivs. 35202-46-1,  
 3,3'-Biisoquinoline 36280-81-6, Tetrabenzo[a,d,j,m]coronene  
 36280-81-6D, Tetrabenzo[a,d,j,m]coronene, derivs. 36474-85-8,  
 Dinaphtho[1,2,3-fg:1',2',3'-qr]pentacene 37736-09-7,  
 1,3,2-Dioxazole 40563-35-7, Dibenz[e,l]acephenanthrylene  
 41132-64-3, Diphenaleno[9',1',2':3,4,5:9'',1'',2'':9,10,11]coronen  
 o[1,2-c:7,8-c']difuran 41163-25-1, Circobiphenyl 42126-84-1,  
 1H-Benzo[cd]fluoranthene 42128-36-9, 2,3-(o-Phenylene)pyrene  
 42315-22-0, 1H-Cyclopenta[a]pyrene 42850-69-1,  
 Dibenzo[c,l]chrysene 42851-11-6, Phenanthro[4,3-b]chrysene  
 51473-13-3, Dibenzo[f,h]quinazoline 51958-76-0,  
 Benzo[rst]phenaleno[1,2,3-de]pentaphene 52191-69-2,  
 2,4'-Biquinoline 52879-10-4, Benzo[rst]naphtho[8,1,2-  
 cde]pentaphene 53086-28-5, Dinaphtho[8,1,2-abc:2',1',8'-  
 klm]coronene 53156-62-0, Benzo[b]naphtho[1,2,3,4-pqr]perylene  
 53156-66-4, Dibenzo[c,g]chrysene 53156-67-5,  
 Dibenzo[b,g]chrysene 54961-30-7, Tribenzo[a,hi,mn]naphthacene  
 56181-09-0, Benzo[rst]dinaphtho[8,1,2-cde:2',1',8'-klm]pentaphene  
 56663-32-2, 1,1'-Bicoronene 56832-73-6, Benzofluoranthene  
 57387-21-0 57789-81-8, Dibenzo[a,ghi]naphtho[2,1,8-cde]perylene  
 58029-37-1, Naphtho[2,3-c]chrysene 58029-38-2,  
 Dibenzo[b,l]chrysene 58029-39-3, Naphtho[1,2-a]naphthacene  
 58029-40-6, Phenanthro[3,4-a]anthracene 58029-41-7,  
 Benzo[a]naphth[2,1-j]anthracene 58029-42-8, Dibenzo[b,p]chrysene  
 58029-43-9, Naphtho[2,1-b]chrysene 58029-44-0,  
 Naphtho[2,1-c]chrysene 58029-45-1, Benzo[a]picene 58029-46-2,  
 Naphtho[1,2-c]chrysene 58029-47-3, Benzo[f]picene 58052-99-6,  
 Dinaphtho[8,1,2-lmn:2',1',8'-gra]naphthacene 58615-36-4,

Dibenzopyrene 58615-36-4D, Dibenzopyrene, derivs. 59004-71-6,  
3H-Indeno[2,1,7-cde]pyrene 59004-72-7, 4H-  
Benzo[def]cyclopenta[mno]chrysene 60021-28-5, 8,8'-Biquinoline  
60032-75-9, Tribenzo[b,def,p]chrysene 61537-21-1, Sexiphenyl  
62243-32-7, Phenanthro[2,1-b]chrysene 63218-07-5,  
Dibenzo[c,i]cyclopenta[a]fluorene 64503-02-2,  
1H-Benzo[ghi]cyclopenta[pqr]perylene 65181-78-4,  
N,N'-Bis(3-methylphenyl)-N,N'-diphenylbenzidine 65256-40-8,  
Dibenzoperylene 65256-40-8D, Dibenzoperylene, derivs.  
67017-06-5, Dibenzocoronene 67017-06-5D, Dibenzocoronene,  
derivs. 67017-07-6, Tribenzocoronene 67017-07-6D,  
Tribenzocoronene, derivs. 67665-45-6,  
9,9'-Spirobi(9H-fluorene)-2,2'-diamine 67665-48-9,  
9,9'-Spirobi(9H-fluorene)-2,2'-dicarbonitrile 68171-26-6,  
Dinaphth[1,2-a:2',1'-j]anthracene 70346-75-7,  
Dibenzo[a,jk]phenanthro[8,9,10,1,2-cdefgh]pyranthrene  
72088-81-4, Cyclopent[b]indeno[4,5-g]phenanthrene 72088-82-5,  
Cyclopent[b]indeno[5,6-g]phenanthrene 72986-34-6,  
Benzo[def]pyranthrene 73467-76-2, Benzopyrene 73467-76-2D,  
Benzopyrene, derivs. 74335-56-1, Peri-Pentacenopentacene  
75449-86-4, Benzo[g]naphtho[8,1,2-abc]coronene 75449-87-5,  
Phenanthro[1,10,9-abc]coronene 75449-88-6, Benz[a]ovalene  
75449-89-7, Benz[d]ovalene 75449-90-0, Pyreno[10,1,2-  
abc]coronene 75449-91-1, Acenaphtho[1,2,3-cde]pyrene  
75449-92-2, Phenanthro[5,4,3,2-abcde]perylene 75449-94-4,  
Benzo[lmn]naphtho[2,1,8-qr]perylene 75449-96-6,  
Dibenz[e,ghi]indeno[1,2,3,4-pqra]perylene 75449-98-8,  
Benzo[ij]dinaphtho[2,1,8,7-defg:7',8',1',2',3'-pqrst]pentaphene  
75449-99-9, Benzo(m)naphtho[8,1,2-abc]coronene 75450-00-9,  
Benzo(p)naphtho[8,1,2-abc]coronene 75459-00-6,  
Benzo[j]naphtho[8,1,2-abc]coronene 75459-01-7,  
Phenanthro[10,1,2-abc]coronene 75459-02-8, Dinaphtho[8,1,2-  
abc:8',1',2'-ghi]coronene 75459-03-9 75459-04-0,  
Pyreno[1,10,9-abc]coronene 75459-05-1, Benzo[qr]naphtho[3,2,1,8-  
defg]chrysene 75459-08-4, Dibenzo[a,cd]naphtho[8,1,2,3-  
fghi]perylene 75459-09-5, Dibenzo[ij,rst]naphtho[2,1,8,7-  
defg]pentaphene 75519-75-4, Naphth[2,1-a]aceanthrylene  
75769-05-0, Dibenzo[de,gh][1,10]phenanthroline 76727-41-8,  
Benz[5,6]indeno[2,1-a]phenalene 76748-63-5, Circumanthracene  
76748-64-6, Diphenaleno[4,3,2,1,9-hijklm:4',3',2',1',9'-  
tuvwxa]rubicene 76759-99-4, Dibenzo[mn,qr]fluoreno[2,1,9,8,7-  
defghi]naphthacene 77147-27-4, Tribenzo[a,jk,v]phenanthro[8,9,10,  
1,2-cdefgh]pyranthrene 80277-95-8, Phenanthro[9,10-b]chrysene  
80455-52-3, Cyclopentaphenanthrene 81965-54-0,  
Dibenzo[hi,op]dinaphtho[8,1,2-cde:2',1',8'-uva]pentacene  
82453-25-6, 3,3'-Bicinnoline 82628-46-4, Dibenzo[b,m]picene  
83786-06-5, Dibenzo[de,kl]pentaphene 84030-79-5,  
Dibenzo[a,k]fluoranthene 85903-97-5, Benz[de]isoquino[1,8-



gh]quinoline 90207-46-8, Dicyclopenta[a,j]coronene 91374-35-5,  
Naphth[2,1,8-uva]ovalene 92411-20-6, Tribenzo[a,cd,lm]perylene  
92586-98-6, Anthra[2,1,9,8-opqra]naphthacene 93122-98-6,  
Dibenzo[j,lm]naphtho[1,8-ab]perylene 93289-29-3,  
Benzo[a]heptacene 95690-49-6, Benz[1]acephenanthrylene  
96204-29-4, Dibenzo[o,rst]dinaphtho[2,1-a:8',1',2'-cde]pentaphene  
96204-30-7, Dibenzo[a,rst]benzo[5,6]phenanthro[9,10,1-  
klm]pentaphene 96915-18-3, Indeno[5,6,7,1-pqra]perylene  
96915-19-4, Benz[mno]indeno[5,6,7,1-defg]chrysene 96915-20-7,  
Dibenzo[def,mno]cyclopenta[hi]chrysene 96915-21-8,  
Benz[mno]indeno[1,7,6,5-cdef]chrysene 97083-12-0  
97269-75-5D, Tribenzo[fgh,pqr,zalbl]trinaphthylene, derivs.  
97938-05-1, Benzo[lm]naphtho[1,8-ab]perylene 98570-53-7,  
Dicoronylene 98570-54-8, Cyclopenta[1,2-a:3,4,5-b'c']dicoronene  
100684-90-0, Benzo[pqr]naphtho[2,1,8-def]picene 101686-49-1,  
Indeno[1,2,3-cd]perylene 102634-38-8, Benz[b]indeno[2,1-  
h]fluorene 102634-40-2, Fluoreno[3,2-b]fluorene 105442-96-4,  
Dibenzo[def,i]naphtho[8,1,2-vwx]pyranthrene 105786-27-4,  
Benzo[ij]naphtho[2,1,8,7-defg]pentaphene 106404-28-8,  
Naphth[1',2':5,6]indeno[1,2,3-cd]pyrene 106404-29-9,  
Naphth[2',1':4,5]indeno[1,2,3-cd]pyrene 108189-73-7D, derivs.  
108650-10-8, Tribenzo[c,g,mno]chrysene 109278-08-2,  
Benzo[lm]phenanthro[5,4,3-abcd]perylene 109278-09-3,  
Dibenzo[cd,n]naphtho[3,2,1,8-pqra]perylene 109278-10-6,  
Tetrabenzo[a,cd,f,lm]perylene 109587-09-9, 1H-  
Cyclopenta[e]pyrene 109587-16-8, Tetrabenzo[a,c,hi,mn]naphthacen  
e 109587-17-9, Tetrabenzo[de,jk,op,uv]pentacene 110789-63-4,  
Dibenzo[fgh,pqr]trinaphthylene 111189-32-3, Indeno[1,2,3-  
hi]chrysene 111189-33-4, Benz[def]indeno[1,2,3-hi]chrysene  
111189-34-5, Benz[def]indeno[1,2,3-qr]chrysene 111381-82-9,  
Phenanthro[2,1-f]picene 111728-58-6, Benzo[pqr]naphtho[8,1,2-  
cde]picene 112498-94-9, Benzo[a]naphtho[1,2-j]naphthacene  
112498-95-0, Phenanthro[3,4-b]triphenylene 112498-96-1,  
Benzo[a]naphtho[1,2-l]naphthacene 112498-97-2,  
Benzo[a]naphtho[2,1-j]naphthacene 113779-16-1,  
Benzo[1]cyclopenta[cd]pyrene 115697-03-5D,  
Pentabenzo[fg,ij,o,q,vwx]hexaphene, derivs. 115697-04-6D,  
derivs. 115697-10-4 115697-12-6, Benzo[m]diphenanthro[1,10,9-  
abc:1',10',9'-ghi]coronene 115697-46-6D, derivs. 115712-69-1D,  
derivs. 115747-36-9, Dibenzo[a,f]picene 115747-37-0,  
Dibenzo[a,c]pentaphene 115747-38-1, Dibenzo[a,h]pentaphene  
115747-39-2, Dibenzo[c,h]pentaphene 115747-40-5,  
Phenanthro[2,3-g]chrysene 115747-41-6, Phenanthro[3,2-g]chrysene  
115747-42-7, Benzo[1]naphtho[1,2-b]chrysene 115747-43-8,  
Naphtho[2,1-c]picene 115747-44-9, Benzo[c]naphtho[2,3-l]chrysene  
115747-45-0, Benzo[a]naphtho[1,2-c]naphthacene 115747-46-1,  
Tribenzo[b,g,k]chrysene 115747-47-2, Tribenzo[b,g,l]chrysene  
115747-48-3, Dibenzo[b,j]picene 115747-49-4,

Naphtho[1,2-f]picene 115747-50-7, Dibenzo[c,s]picene  
 115747-51-8, Naphtho[2,1-a]picene 115747-52-9,  
 Benzo[c]naphtho[1,2-l]chrysene 115747-53-0, Benzo[l]naphtho[2,1-  
 b]chrysene 115747-54-1, Dibenzo[a,j]picene 115747-55-2,  
 Benzo(p)naphtho[1,2-b]chrysene 115747-56-3, Benzo(p)naphtho[2,1-  
 b]chrysene 115747-57-4, Benzo[g]naphtho[2,1-b]chrysene  
 115747-58-5, Naphtho[2,3-a]picene 115747-59-6,  
 Anthra[1,2-a]benz[j]anthracene 115747-60-9,  
 Dibenzo[a,o]pentaphene 115747-61-0, Phenanthro[2,3-c]chrysene  
 115747-62-1, Dibenzo[a,n]picene 115747-63-2,  
 Phenanthro[1,2-a]naphthacene 115747-64-3, Naphtho[1,2-  
 h]pentaphene 115747-65-4, Benzo[b]naphtho[2,3-g]chrysene  
 115747-66-5, Naphtho[2,3-s]picene 115747-67-6,  
 Benzo[b]naphtho[2,1-p]chrysene 115747-68-7, Dibenzo[b,f]picene  
 115747-69-8, Benzo[b]naphtho[2,1-g]chrysene 115747-70-1,  
 Dibenzo[a,c]picene 115747-71-2, Benzo[b]naphtho[2,3-l]chrysene  
 115747-72-3, Dibenzo[f,s]picene 115747-73-4,  
 Naphtho[2,3-a]pentaphene 115747-74-5, Benzo[q]hexaphene  
 115747-75-6, Naphtho[2,3-b]picene 115747-76-7, Benzo(o)hexaphene  
 115747-77-8, Tribenzo[b,g,p]chrysene 115747-78-9,  
 Anthra[1,2-a]naphthacene 115747-79-0, Benzo[a]hexaphene  
 115747-80-3, Naphtho[1,2-c]pentaphene 115747-81-4,  
 Naphtho[2,1-b]picene 115747-82-5, Naphtho[1,2-b]picene  
 115747-83-6, Dibenzo[a,m]pentaphene 115747-84-7,  
 Phenanthro[3,4-b]chrysene 115747-85-8, Naphtho[1,2-a]pentaphene  
 115747-86-9, Naphtho[2,1-a]pentaphene 115747-87-0,  
 Benzo[a]naphtho[2,1-l]naphthacene 115747-88-1,  
 Dibenzo[b,s]picene 115747-89-2, Phenanthro[3,4-a]naphthacene  
 115747-90-5, Benzo[b]naphtho[1,2-l]chrysene 115747-91-6,  
 Benzo[b]naphtho[2,1-k]chrysene 115747-92-7, Benzo[c]hexaphene  
 115747-93-8, Dibenzo[a,o]picene 115791-73-6,  
 Phenanthro[9,10-a]naphthacene 115791-74-7, Naphtho[1,2-  
 a]pentacene 115791-75-8, Naphtho[2,1-c]pentaphene 117440-50-3,  
 Tribenzo[a,f,j]perylene 117726-80-4,  
 Dibenzo[j,lm]phenanthro[5,4,3-abcd]perylene 117726-81-5,  
 Dibenzo[rs,vwx]naphtho[2,1,8,7-klmn]hexaphene 117726-82-6  
 117726-83-7, Benz[4,10]anthra[1,9,8-abcd]coronene 117726-84-8,  
 Dibenzo[fg,ij]naphtho[2,1,8-uva]pentaphene 117740-28-0,  
 Benzo[rst]pyreno[1,10,9-cde]pentaphene 119000-35-0,  
 Pyreno[2,1-b]picene 119000-37-2, Chryseno[2,1-b]picene  
 119000-39-4, Dibenzo[q,vwx]hexaphene 119000-41-8,  
 Benzo[c]naphtho[2,1-m]pentaphene 119000-43-0,  
 Dinaphtho[2,1-a:2',1'-j]naphthacene 119123-34-1,  
 Benzo[6,7]phenanthro[4,3-b]chrysene  
 (organic **light-emitting** diode devices using  
**luminescent** mixts.)  
 IT 119123-35-2, Benzo[tuv]naphtho[2,1-b]picene 119123-36-3,  
 Naphtho[7,8,1,2,3-tuvwx]hexaphene 120835-39-4,

Naphtho[2,1,8-def]picene 120835-40-7, Dibenzo[a,pqr]picene  
120835-41-8, Naphtho[1,2-b]perylene 120835-43-0,  
Naphtho[2,1-b]perylene 120835-44-1, Dibenzo[c,pqr]picene  
120835-45-2, Benzo[de]naphtho[3,2,1-mn]naphthacene 120835-46-3,  
Dibenzo[de,ij]pentaphene 120835-48-5, Dibenzo[de,uv]pentaphene  
120835-49-6, Benzo[mno]naphtho[1,2-c]chrysene 120835-50-9,  
Naphtho[8,1,2-cde]pentaphene 120835-51-0,  
Dibenzo[a,rst]pentaphene 120835-52-1, Dibenzo[c,rst]pentaphene  
120835-53-2, Dibenzo[de,qr]pentacene 120835-54-3,  
Phenanthro[9,10,1-gra]naphthacene 120835-55-4,  
Naphtho[7,8,1,2,3-pqrst]pentaphene 120835-56-5,  
Benzo[pqr]naphtho[2,1-b]perylene 120835-57-6,  
Benzo[pqr]naphtho[1,2-b]perylene 120835-58-7,  
Phenanthro[1,2,3,4-ghi]perylene 120835-59-8,  
Benzo[ghi]naphtho[2,1-a]perylene 120835-60-1,  
Tribenzo[a,e,ghi]perylene 120835-61-2,  
Dibenzo[b,qr]naphtho[3,2,1,8-defg]chrysene 120835-62-3,  
Tribenzo[b,e,ghi]perylene 120835-63-4, Benzo[ghi]naphtho[2,1-  
b]perylene 120835-64-5, Benzo[rst]naphtho[2,1,8-fgh]pentaphene  
120835-65-6, Tribenzo[de,ij,rst]pentaphene 120835-66-7,  
Benzo[a]naphtho[2,1,8-cde]perylene 120835-67-8,  
Benzo[qr]naphtho[2,1,8,7-defg]pentacene 120835-69-0,  
Benzo[h]naphtho[7,8,1,2,3-pqrst]pentaphene 120835-70-3,  
Benzo[kl]naphtho[2,1,8,7-defg]pentaphene 120835-71-4,  
Benzo[a]naphtho[2,1,8-lmn]perylene 120835-72-5,  
Dibenzo[c,hi]naphtho[3,2,1,8-mnop]chrysene 120835-73-6,  
Benzo[a]naphtho[8,1,2-klm]perylene 120835-74-7,  
Benzo[de]naphtho[8,1,2,3-stuv]picene 120835-75-8,  
Tribenzo[a,ghi,k]perylene 120835-76-9, Benzo[a]naphtho[1,2,3,4-  
ghi]perylene 120835-77-0, Anthra[2,1,9,8-defgh]pentaphene  
120835-78-1, Benzo[a]naphtho[7,8,1,2,3-pqrst]pentaphene  
120835-79-2, Phenanthro[9,10,1,2,3-pqrst]pentaphene 120835-80-5,  
Benzo[c]naphtho[7,8,1,2,3-pqrst]pentaphene 120835-81-6,  
Phenanthro[2,3,4,5-tuvab]picene 120835-82-7,  
Anthra[8,9,1,2-cdefg]benzo[a]naphthacene 120835-83-8,  
Benzo[de]naphtho[2,1,8,7-qrst]pentacene 120835-85-0,  
Naphtho[3,2,1,8,7-vwxyz]hexaphene 120835-86-1,  
Benzo[uv]naphtho[2,1,8,7-defg]pentaphene 120835-87-2,  
Anthra[8,9,1,2-lmnop]benzo[a]naphthacene 120835-88-3,  
Anthra[2,1,9,8-stuva]pentacene 120835-89-4, Dibenzo[a,d]coronene  
120835-90-7, Naphtho[1,2-a]coronene 120835-91-8,  
Dibenzo[fg,ij]naphtho[7,8,1,2,3-pqrst]pentaphene 120835-92-9,  
Dibenzo[de,ij]naphtho[3,2,1,8,7-rstuv]pentaphene 120835-93-0,  
Dinaphtho[2,1,8-fgh:3',2',1',8',7'-rstuv]pentaphene 120835-94-1,  
Dinaphtho[2,1,8,7-defg:2',1',8',7'-qrst]pentacene 120835-95-2,  
Dinaphtho[1,8-ab:8',1',2',3'-fghi]perylene 120835-96-3  
120835-97-4, Dinaphtho[8,1,2-cde:7',8',1',2',3'-pqrst]pentaphene  
120835-98-5, Dinaphtho[2,1,8-fgh:7',8',1',2',3'-pqrst]pentaphene

120835-99-6, Benzo[e]phenanthro[1,10,9,8-opqra]perylene  
 120836-00-2, Dibenzo[de,ij]naphtho[7,8,1,2,3-pqrst]pentaphene  
 120836-01-3, Anthra[2,1,9,8-defgh]benzo[rst]pentaphene  
 120836-02-4, Dibenzo[cd,k]naphtho[3,2,1,8-pqra]perylene  
 120836-03-5, Dibenzo[a,ghi]naphtho[8,1,2-klm]perylene  
 120836-04-6, Dibenzo[a,ghi]naphtho[2,1,8-lmn]perylene  
 120836-05-7, Dibenzo[ghi,n]naphtho[8,1,2-bcd]perylene  
 120836-06-8, Benzo[e]phenanthro[2,3,4,5-pqrab]perylene  
 120836-08-0, Anthra[2,1,9,8,7-defghi]benzo[st]pentacene  
 120836-11-5, Pyreno[5,4,3,2,1-pqrst]pentaphene 120836-12-6  
 120836-13-7, Anthra[2,1,9,8,7-defghi]benzo[uv]pentacene  
 120836-14-8, Anthra[7,8,9,1,2,3-rstuvw]hexaphene 120836-16-0,  
 Anthra[3,2,1,9,8-rstuva]benzo[ij]pentaphene 120836-17-1  
 120836-18-2, Anthra[3,2,1,9-pqra]benzo[cd]perylene 120864-21-3,  
 Anthra[9,1,2-bcd]perylene 120864-22-4,  
 Dibenzo[kl,rst]naphtho[2,1,8,7-defg]pentaphene 120864-23-5,  
 Dibenzo[ghi,lm]naphtho[1,8-ab]perylene 120864-24-6,  
 Anthra[2,1,9,8,7-defghi]benzo[op]pentacene 121159-18-0,  
 Naphtho[2,1,8-uva]pentaphene 122648-99-1 122677-68-3,  
 Dinaphtho[8,1,2-abc:2',1',8'-efg]coronene 122961-15-3,  
 Benzo[j]benzo[2,1-a:3,4-a']dianthracene 123178-01-8D, derivs.  
 123178-24-5D, derivs. 123795-83-5, Dinaphtho[2,1,8-jkl:2',1',8'-  
 uva]pentacene 123847-85-8 125229-51-8 126762-84-3,  
 Dinaphtho[2,1-a:1',2'-l]naphthacene 126762-86-5,  
 Dinaphtho[2,1,8,7-hijk:2',1',8',7'-wxyz]heptacene 127543-08-2,  
 1H-Tribenzo[fg,jk,uv]hexacene 128345-67-5,  
 Tribenzo[a,hi,kl]coronene 128345-68-6, Tribenzo[a,ef,no]coronene  
 128345-69-7, Benzo[bc]naphtho[3,2,1-ef]coronene 128345-70-0,  
 Tribenzo[a,ef,hi]coronene 128345-71-1, Naphtho[3,2,1,8,7-  
 defgh]pyranthrene 128345-72-2, Benzo[bc]naphtho[1,2,3-  
 ef]coronene 128345-73-3, Anthra[9,1,2-abc]coronene  
 128345-74-4, Dinaphtho[8,1,2-abc:2',1',8'-hij]coronene  
 128345-75-5, Dibenzo[kl,no]naphtho[8,1,2-abc]coronene  
 128345-76-6, Benzo[ef]phenaleno[9,1,2-abc]coronene 128345-77-7,  
 Dibenzo[hi,kl]naphtho[8,1,2-abc]coronene 128345-78-8,  
 Anthra[1,9,8-abcd]benzo[hi]coronene 128345-79-9,  
 Benzo[qrs]naphtho[3,2,1,8,7-defgh]pyranthrene 128345-80-2,  
 Tetrabenzo[bc,ef,kl,no]coronene 128366-79-0,  
 Tetrabenzo[bc,ef,hi,kl]coronene 128395-02-8,  
 Dinaphtho[8,1,2-abc:2',1',8'-nop]coronene 128395-03-9,  
 Dibenzo[ef,hi]naphtho[8,1,2-abc]coronene 128515-16-2,  
 Dibenzo[ef,no]naphtho[8,1,2-abc]coronene 128720-98-9,  
 Dinaphtho[1,2,3-fg:3',2',1'-qr]pentacene 128720-99-0,  
 Dinaphtho[3,2,1-fg:1',2',3'-ij]pentaphene 128721-00-6,  
 Dinaphtho[3,2,1-fg:3',2',1'-qr]pentacene 128721-01-7,  
 Tetrabenzo[a,e,j,o]perylene 128721-02-8, Dinaphtho[1,8-bc:1',8'-  
 mn]picene 128746-59-8, Tetrabenzo[a,f,k,n]perylene  
 131238-65-8, Fluoreno[4,3-c]fluorene 133156-50-0,

Dibenzo[f,j]naphtho[1,2,3,4-pqr]picene 133156-51-1,  
 Dibenzo[fg,ij]benzo[9,10]pyreno[5,4,3,2,1-pqrst]pentaphene  
 133156-52-2, Dibenzo[fg,ij]triphenylene[1,2,3,4-rst]pentaphene  
 133979-16-5, Dinaphtho[2,3-c:2',3'-m]pentaphene 136276-45-4,  
 Fluoreno[9,1-ab]triphenylene 136739-74-7 137570-57-1,  
 Benzo[mno]naphtho[2,1-c]chrysene 137570-58-2,  
 Phenanthro[1,2,3,4-def]chrysene 137570-59-3,  
 Benzo[fg]naphtho[1,2,3-op]naphthacene 137570-60-6,  
 Benzo[c]naphtho[8,1,2-ghi]chrysene 137593-96-5,  
 Benzo[b]naphtho[8,1,2-pqr]chrysene 137593-97-6,  
 Dibenzo[pq,uv]pentaphene 141046-06-2, 13H-  
 Dibenz[bc,l]aceanthrylene 141046-07-3, 4H-  
 Benzo[b]cyclopenta[mno]chrysene 143214-92-0, Naphthopyrene  
 143214-92-0D, Naphthopyrene, derivs. 143255-65-6,  
 4H-Benzo[c]cyclopenta[mno]chrysene 143255-67-8,  
 13H-Indeno[2,1,7-qua]naphthacene 143255-68-9,  
 4H-Benzo[b]cyclopenta[jkl]triphenylene 148292-86-8,  
 Indeno[1,7-ab]chrysene 148896-39-3, Bis[10-  
 hydroxybenzo[h]quinolinato]beryllium 149054-17-1,  
 13H-Cyclopenta[rst]pentaphene 149054-18-2, 5H-  
 Benzo[b]cyclopenta[def]chrysene 151841-51-9 151841-51-9D,  
 derivs. 153043-81-3, Indeno[1,7,6,5-cdef]chrysene 153043-82-4,  
 Benzo[def]cyclopenta[qr]chrysene 155121-10-1,  
 Pentaleno[1,2-b:4,5-b']dinaphthalene 158782-55-9,  
 Tetrabenzo[fg,ij,pq,uv]pentaphene **171408-92-7**  
**172285-72-2** 181270-04-2, Indeno[5,6,7,1-defg]chrysene  
 182631-29-4 **186412-15-7** 188882-34-0,  
 8H-Benzo(p)cyclopenta[def]chrysene 196311-56-5D, derivs.  
 200950-04-5, 7H-Indeno[1,2-a]pyrene 210487-02-8 210487-03-9  
 210487-04-0 216066-66-9 216066-70-5 218629-56-2D, derivs.  
 239127-66-3, Naphtho[2,3-f][1,10]phenanthroline  
**247575-24-2** 249288-56-0 249512-71-8  
**274905-73-6** 331856-51-0 **363609-60-3**  
 374592-88-8 374592-94-6 405880-13-9 405880-29-7  
 405881-79-0 405881-98-3 **460347-68-6**  
**462104-51-4** **473906-55-7** 474084-24-7  
 474353-08-7, 3H-1,2,3-Dioxazole **474918-41-7**  
 478799-51-8 478799-69-8 **497157-27-4**  
**503307-40-2** **503307-41-3** 503624-47-3  
 682331-02-8 682331-03-9 682331-04-0D,  
 Benzo[g]phenanthro[1,10,9-abc]coronene, derivs. 682331-05-1D,  
 derivs. 682331-06-2D, derivs. 682334-86-7 682334-87-8  
 (organic light-emitting diode devices using  
 luminescent mixts.)  
 IT 197-70-6, Benzo[b]perylene 197-74-0, Dibenzo[b,k]perylene  
 198-55-0, Perylene 517-51-1, 5,6,11,12-Tetraphenylnaphthacene  
 1047-16-1, Quinacridone 38215-36-0, Coumarin 6 51325-91-8, DCM  
 55035-42-2, 4-Diphenylamino)-4'-[4-(diphenylamino)styryl]stilbene

55035-43-3, 4-(Di-p-Tolylamino)-4'-[(di-p-tolylamino)styryl]stilbene 55035-47-7,  
9,10-Bis[4-(di-p-tolylamino)styryl]anthracene 62555-95-7  
62556-02-9 80663-92-9, 2,5,8,11-Tetra-tert-butylperylene  
96323-47-6 119564-27-1 120369-88-2 127374-49-6  
155306-71-1, Coumarin 545T 155306-72-2, Coumarin 525T  
200052-70-6, DCJTB 221455-80-7, Diphenylquinacridone  
249288-60-6 369612-04-4, 2,8-Di-tert-butylperylene 478799-44-9  
478799-49-4, 5,6,13,14-Tetraphenylpentacene 500800-87-3  
682331-01-7

(organic light-emitting diode devices using  
luminescent mixts.)

L40 ANSWER 19 OF 65 CAPLUS COPYRIGHT 2005 ACS on STN

ACCESSION NUMBER: 2004:268524 CAPLUS

DOCUMENT NUMBER: 140:294563

TITLE: Bis(2-fluorenyl)amino(diphenylboryl)arenes,  
and organic electroluminescent devices with  
high luminescence efficiency

INVENTOR(S): Shirota, Yasuhiko; Okumoto, Kenji; Doi,  
Hideharu; Kinoshita, Motoshi

PATENT ASSIGNEE(S): Osaka Industrial Promotion Organization, Japan

SOURCE: Jpn. Kokai Tokkyo Koho, 38 pp.

CODEN: JKXXAF

DOCUMENT TYPE: Patent

LANGUAGE: Japanese

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
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JP 2004099464	A2	20040402	JP 2002-260401	

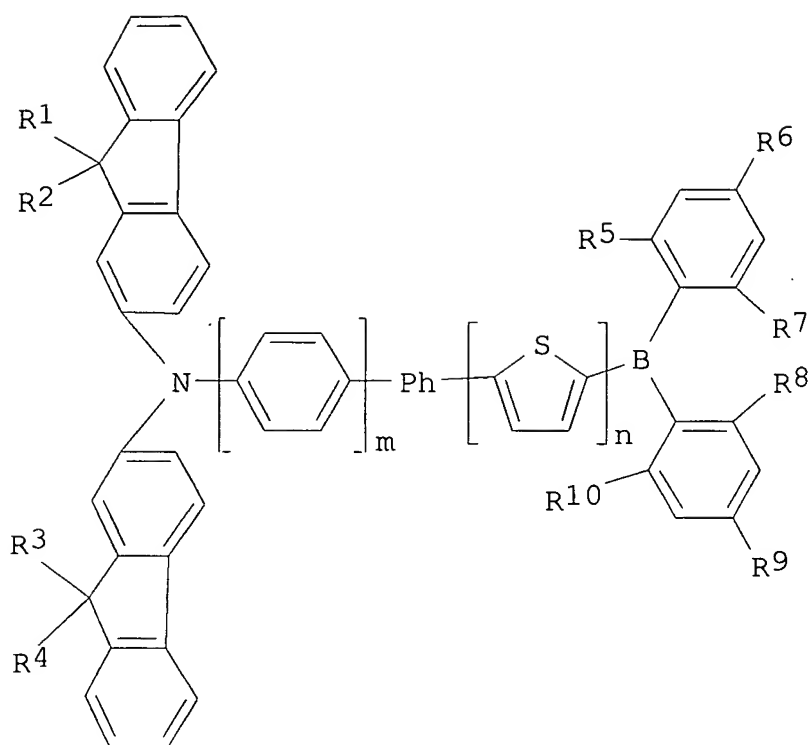
2002  
0905

PRIORITY APPLN. INFO.: JP 2002-260401

2002  
0905

OTHER SOURCE(S): MARPAT 140:294563

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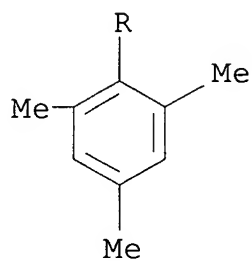
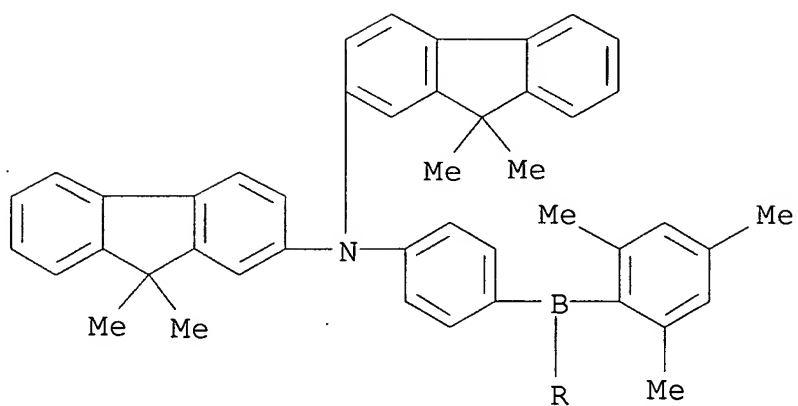
AB The arenes are I (R1-R4 = H, C1-6 alkyl, C1-6 alkoxy; R5-R10 = C1-6 alkyl, C1-6 alkoxy; Ph = 1,3- or 1,4-phenylene; m = 0, 1; n = 0-3; n = 0, 2, or 3 when R1-R10 = Me, m = 0, and Ph = 1,4-phenylene). Preferably, the organic electroluminescent devices include laminated  $\geq 2$  different color-emitting **layers** for emitting white light.

IT 503475-41-0P 503475-42-1P 503475-43-2P  
676130-55-5P 676130-56-6P

(bis(2-fluorenyl)amino(diphenylboryl)arenes for organic electroluminescent devices with high **luminescence** efficiency)

RN 503475-41-0 CAPLUS

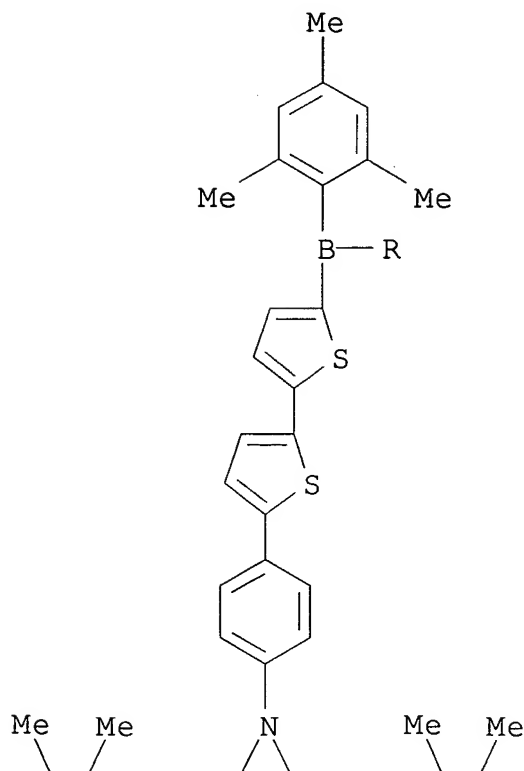
CN 9H-Fluoren-2-amine, N-[4-[bis(2,4,6-trimethylphenyl)boryl]phenyl]-N-(9,9-dimethyl-9H-fluoren-2-yl)-9,9-dimethyl- (9CI) (CA INDEX NAME)



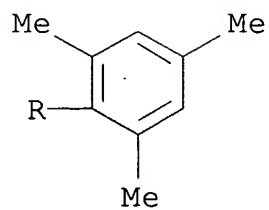
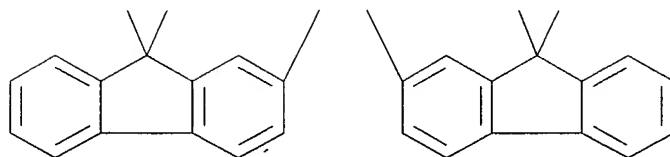
RN 503475-42-1 CAPLUS  
 CN 9H-Fluoren-2-amine, N-[4-[5'-(bis(2,4,6-trimethylphenyl)boryl)[2,2'-bithiophen]-5-yl]phenyl]-N-(9,9-dimethyl-9H-fluoren-2-yl)-9,9-dimethyl- (9CI) (CA INDEX NAME)



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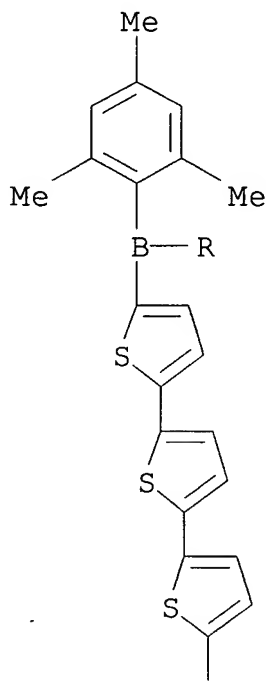


PAGE 2-A

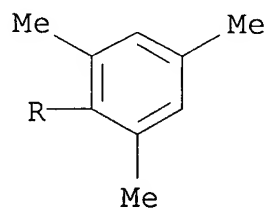
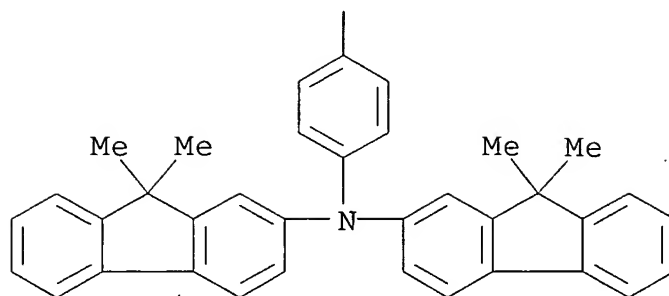


CN 9H-Fluoren-2-amine, N-[4-[5''-[bis(2,4,6-trimethylphenyl)boryl][2,2':5',2''-terthiophen]-5-yl]phenyl]-N-(9,9-dimethyl-9H-fluoren-2-yl)-9,9-dimethyl- (9CI) (CA INDEX NAME)

PAGE 1-A

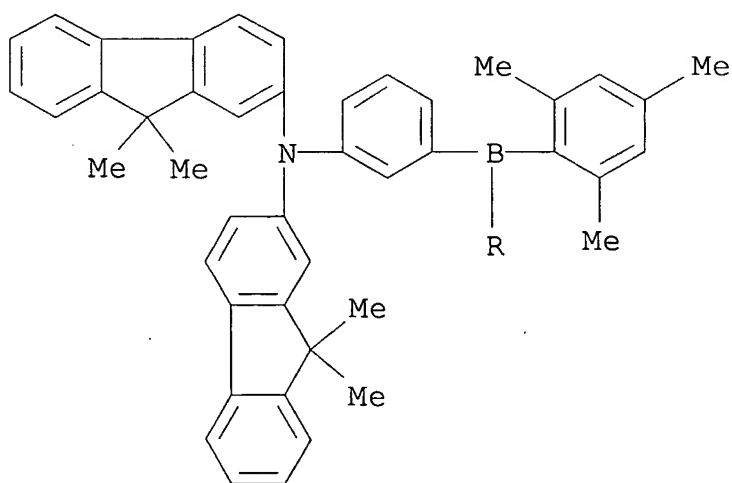


PAGE 2-A

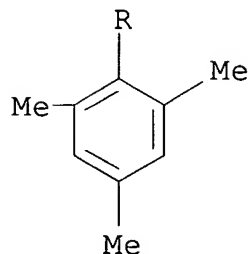


RN 676130-55-5 CAPLUS  
CN 9H-Fluoren-2-amine, N-[3-[bis(2,4,6-trimethylphenyl)boryl]phenyl]-  
N-(9,9-dimethyl-9H-fluoren-2-yl)-9,9-dimethyl- (9CI) (CA INDEX  
NAME)

PAGE 1-A

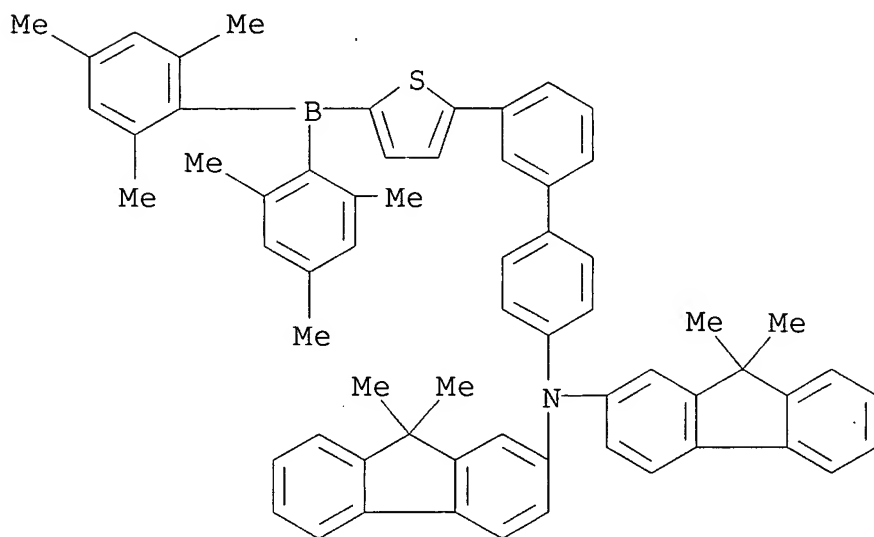


PAGE 2-A



RN 676130-56-6 CAPLUS

CN 9H-Fluoren-2-amine, N-[3'-[5-[bis(2,4,6-trimethylphenyl)boryl]-2-thienyl][1,1'-biphenyl]-4-yl]-N-(9,9-dimethyl-9H-fluoren-2-yl)-9,9-dimethyl- (9CI) (CA INDEX NAME)

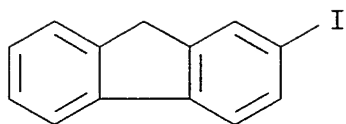


IT 2523-42-4P, 2-Iodofluorene 144981-85-1P,  
 9,9-Dimethyl-2-iodofluorene 165320-27-4P,  
 N,N-Bis(9,9-dimethylfluoren-2-yl)aniline 313050-71-4P  
 356797-82-5P 503475-44-3P 503475-45-4P  
 676130-57-7P 676130-58-8P

(bis(2-fluorenyl)amino(diphenylboryl)arenes for organic electroluminescent devices with high luminescence efficiency)

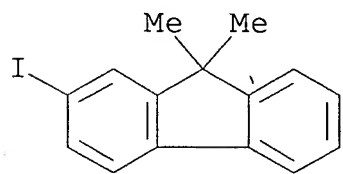
RN 2523-42-4 CAPLUS

CN 9H-Fluorene, 2-iodo- (9CI) (CA INDEX NAME)



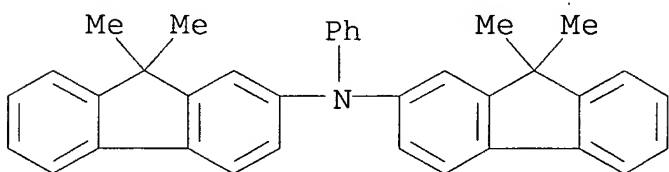
RN 144981-85-1 CAPLUS

CN 9H-Fluorene, 2-iodo-9,9-dimethyl- (9CI) (CA INDEX NAME).



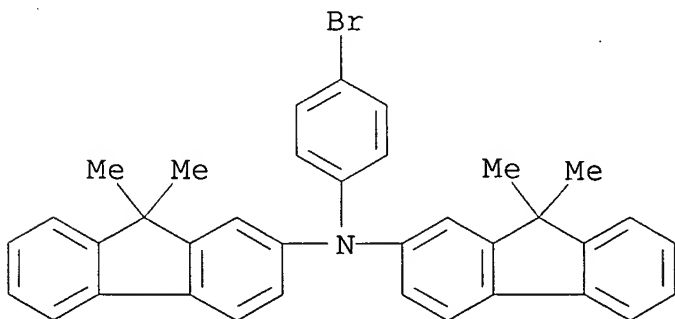
RN 165320-27-4 CAPLUS

CN 9H-Fluoren-2-amine, N-(9,9-dimethyl-9H-fluoren-2-yl)-9,9-dimethyl-N-phenyl- (9CI) (CA INDEX NAME)



RN 313050-71-4 CAPLUS

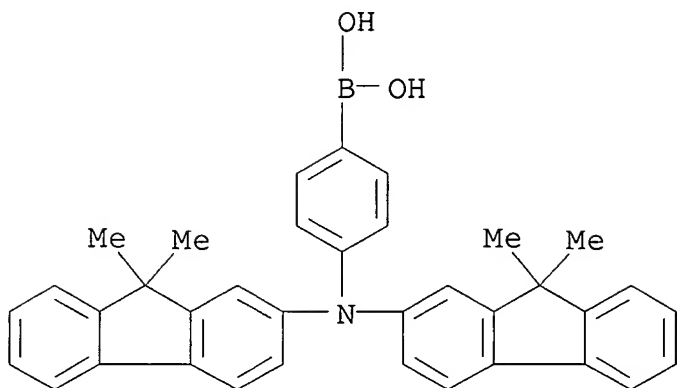
CN 9H-Fluoren-2-amine, N-(4-bromophenyl)-N-(9,9-dimethyl-9H-fluoren-2-yl)-9,9-dimethyl- (9CI) (CA INDEX NAME)



RN 356797-82-5 CAPLUS

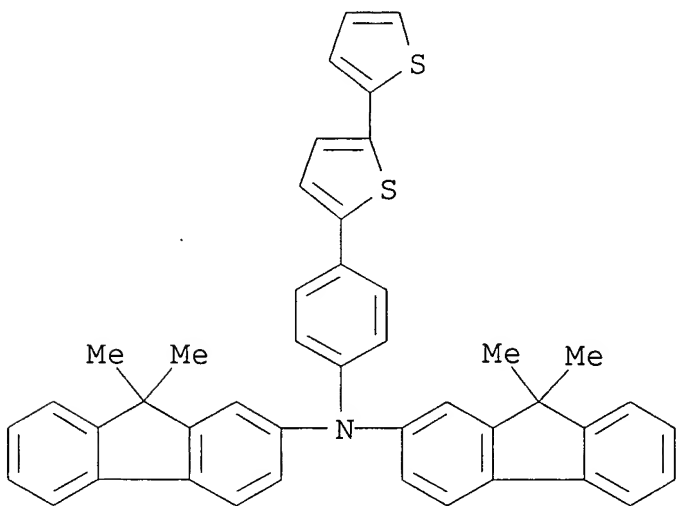
CN Boronic acid, [4-[bis(9,9-dimethyl-9H-fluoren-2-yl)amino]phenyl]-

(9CI) (CA INDEX NAME)



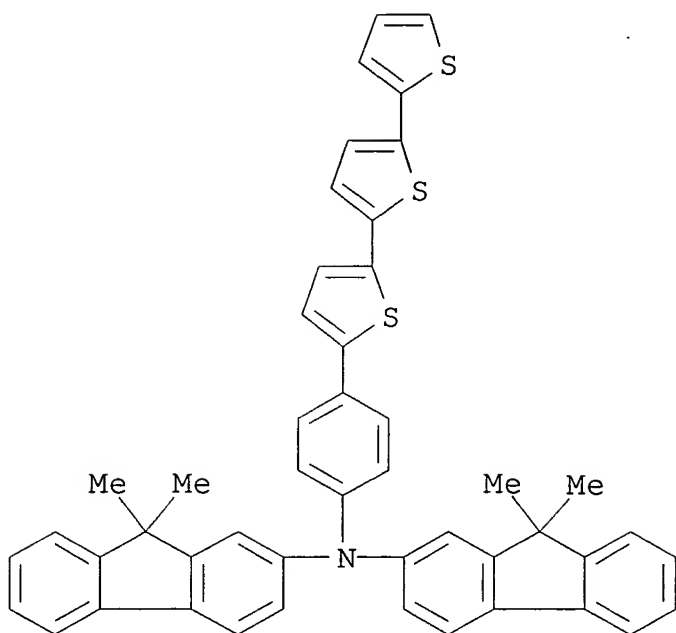
RN 503475-44-3 CAPLUS

CN 9H-Fluoren-2-amine, N-(4-[2,2'-bithiophen]-5-ylphenyl)-N-(9,9-dimethyl-9H-fluoren-2-yl)-9,9-dimethyl- (9CI) (CA INDEX NAME)



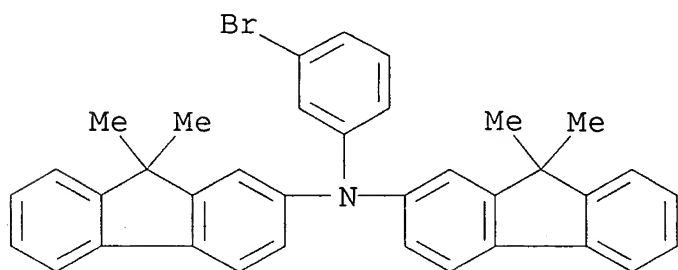
RN 503475-45-4 CAPLUS

CN 9H-Fluoren-2-amine, N-(9,9-dimethyl-9H-fluoren-2-yl)-9,9-dimethyl-N-(4-[2,2':5',2''-terthiophen]-5-ylphenyl)- (9CI) (CA INDEX NAME)



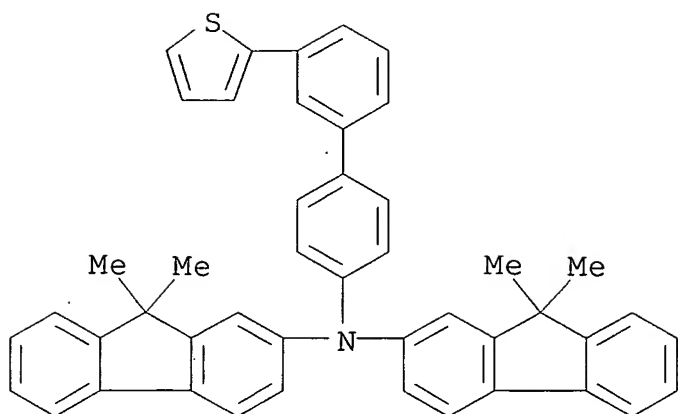
RN 676130-57-7 CAPLUS

CN 9H-Fluoren-2-amine, N-(3-bromophenyl)-N-(9,9-dimethyl-9H-fluoren-2-yl)-9,9-dimethyl- (9CI) (CA INDEX NAME)

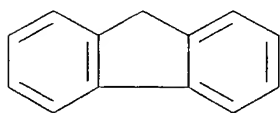


RN 676130-58-8 CAPLUS

CN 9H-Fluoren-2-amine, N-(9,9-dimethyl-9H-fluoren-2-yl)-9,9-dimethyl-N-[3'-(2-thienyl)[1,1'-biphenyl]-4-yl]- (9CI) (CA INDEX NAME)



IT 86-73-7, Fluorene  
 (bis(2-fluorenyl)amino(diphenylboryl)arenes for organic  
 electroluminescent devices with high **luminescence**  
 efficiency)  
 RN 86-73-7 CAPLUS  
 CN 9H-Fluorene (9CI) (CA INDEX NAME)



IC ICM C07F005-02  
 ICS C09K011-06; H05B033-12; H05B033-14; H05B033-22  
 CC 73-11 (Optical, Electron, and Mass Spectroscopy and  
 Other Related Properties)  
 Section cross-reference(s): 29  
 IT Electroluminescent devices  
 (bis(2-fluorenyl)amino(diphenylboryl)arenes for organic  
 electroluminescent devices with high **luminescence**  
 efficiency)  
 IT **Luminescent** substances  
 (electroluminescent; bis(2-fluorenyl)amino(diphenylboryl)arenes  
 for organic electroluminescent devices with high  
**luminescence** efficiency)  
 IT 503475-41-0P 503475-42-1P 503475-43-2P  
 676130-55-5P 676130-56-6P  
 (bis(2-fluorenyl)amino(diphenylboryl)arenes for organic  
 electroluminescent devices with high **luminescence**  
 efficiency)  
 IT 2523-42-4P, 2-Iodofluorene 94581-95-0P 132898-95-4P



144981-85-1P, 9,9-Dimethyl-2-iodofluorene  
165320-27-4P, N,N-Bis(9,9-dimethylfluoren-2-yl)aniline  
313050-71-4P 356797-82-5P 503475-44-3P  
503475-45-4P 676130-57-7P 676130-58-8P  
(bis(2-fluorenyl)amino(diphenylboryl)arenes for organic  
electroluminescent devices with high luminescence  
efficiency)

IT 62-53-3, Aniline, reactions 86-73-7, Fluorene  
121-43-7, Trimethyl borate 436-59-9 492-97-7, 2,2'-Bithiophene  
591-18-4, 3-Iodobromobenzene 591-19-5, 3-Bromoaniline  
6165-68-0, 2-Thiopheneboronic acid 111744-23-1, Terthiophene  
(bis(2-fluorenyl)amino(diphenylboryl)arenes for organic  
electroluminescent devices with high luminescence  
efficiency)

L40 ANSWER 20 OF 65 CAPLUS COPYRIGHT 2005 ACS on STN

ACCESSION NUMBER: 2004:217149 CAPLUS

DOCUMENT NUMBER: 140:278193

TITLE: Manufacture of amorphous polyphenols with good  
heat resistance as electroluminescent  
substances and hole transporters for organic  
electroluminescent devices

INVENTOR(S): Fukuoka, Naohiko; Tagami, Sanae; Fujiwara,  
Toru; Shionoya, Hidehiko

PATENT ASSIGNEE(S): Chemipro Kasei Ltd., Japan

SOURCE: Jpn. Kokai Tokkyo Koho, 62 pp.

CODEN: JKXXAF

DOCUMENT TYPE: Patent

LANGUAGE: Japanese

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
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JP 2004083444	A2	20040318	JP 2002-244369	

2002  
0823

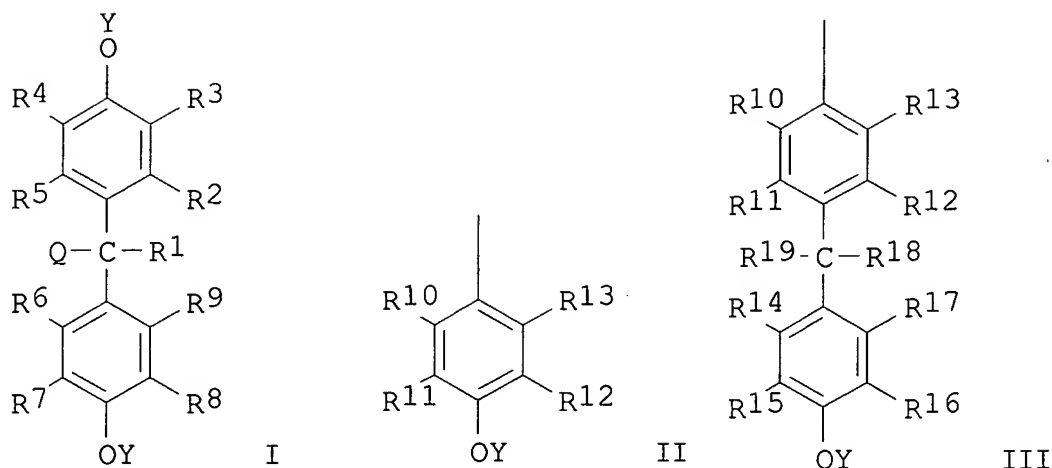
PRIORITY APPLN. INFO.:

JP 2002-244369

2002  
0823

OTHER SOURCE(S): MARPAT 140:278193

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AB The polyphenols I [Q = II, III, etc.; R1, R18, R19 = H, (halo)alkyl, (alkyl)cycloalkyl, etc.; Y = CH<sub>2</sub>Ar<sub>1</sub>NAr<sub>2</sub>Ar<sub>3</sub>; R<sub>2</sub>-R<sub>17</sub> = H, halo, (halo)alkyl, etc.; Ar<sub>1</sub> = arylene [substituted by halo, (cyclo)alkyl, aralkyl, etc.], Ar<sub>2</sub>, Ar<sub>3</sub> = aryl [substituted by halo, (cyclo)alkyl, aralkyl, etc.]] are manufactured by treatment of I (Q = II, III, etc.; Y = H, R<sub>1</sub>-R<sub>19</sub> = same as above) with Ar<sub>2</sub>Ar<sub>3</sub>NAr<sub>1</sub>CH<sub>2</sub>OH (Ar<sub>1</sub>-Ar<sub>3</sub> = same as above), or treatment of I (Q = II, III, etc.; Y = CH<sub>2</sub>Ar<sub>1</sub>X; Ar<sub>1</sub> = same as above; X = halo) with HNAr<sub>2</sub>Ar<sub>3</sub> (Ar<sub>2</sub>, Ar<sub>3</sub> = same as above). Emitter or hole-transporting **layers** of the devices are effectively manufactured by solution casting of the polyphenols instead of vapor deposition.

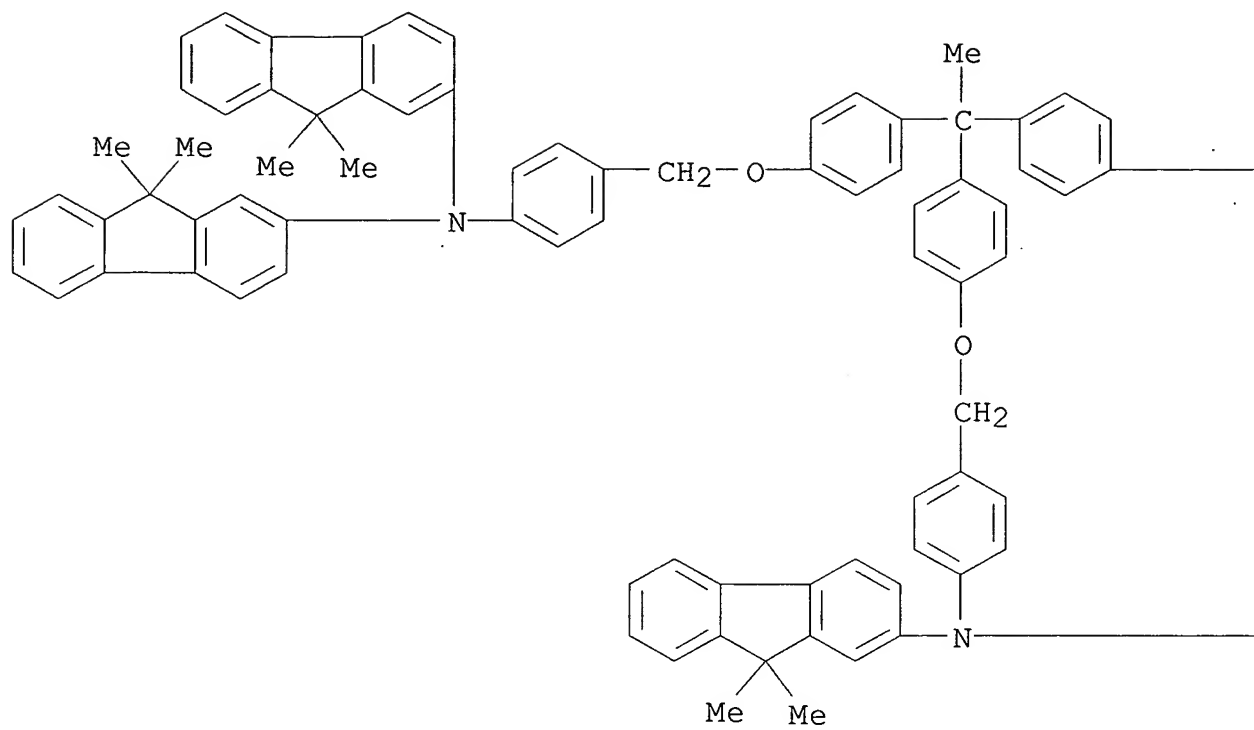
IT 672288-96-9P 672288-97-0P 672289-00-8P  
672289-01-9P 672289-03-1P 672289-06-4P  
672289-18-8P 672289-20-2P 672289-22-4P  
672289-25-7P

(manufacture of amorphous polyphenols as electroluminescent substances and hole transporters for organic electroluminescent devices)

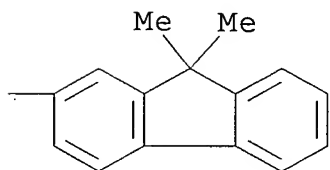
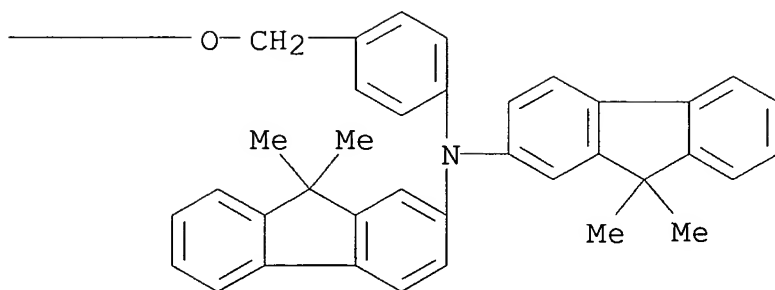
RN 672288-96-9 CAPLUS

CN 9H-Fluoren-2-amine, N,N',N''-[ethylidynetris(4,1-phenyleneoxymethylene-4,1-phenylene)]tris[N-(9,9-dimethyl-9H-fluoren-2-yl)-9,9-dimethyl- (9CI) (CA INDEX NAME)

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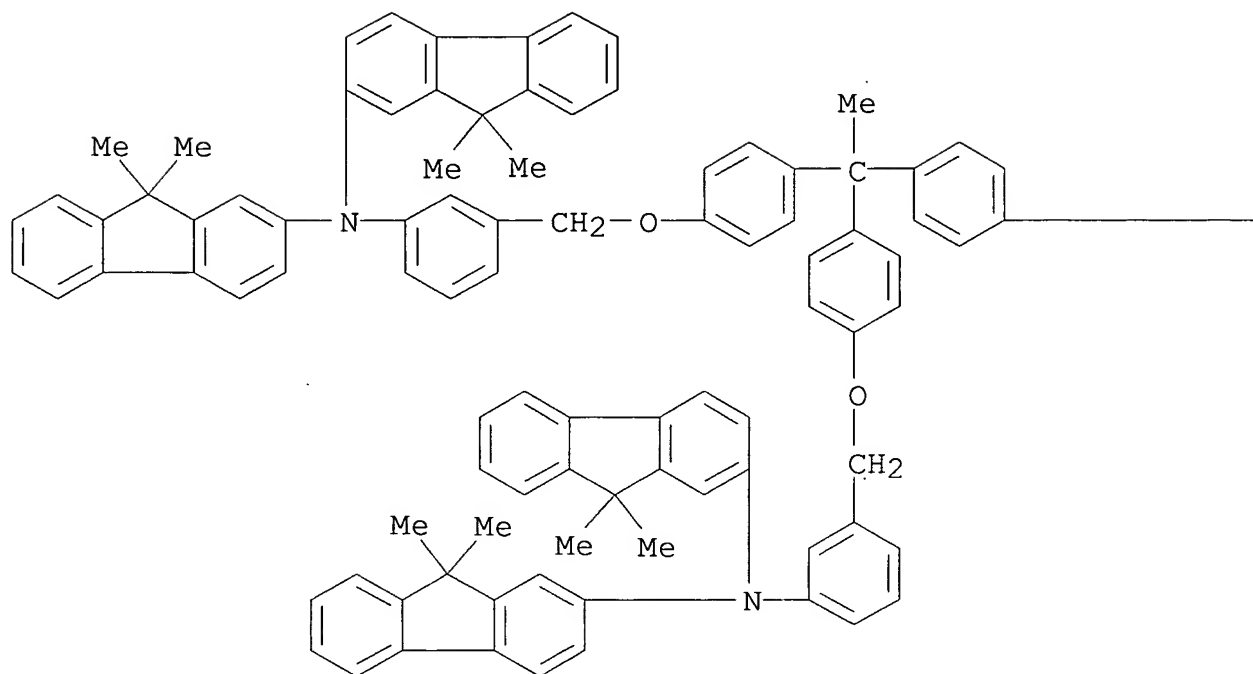


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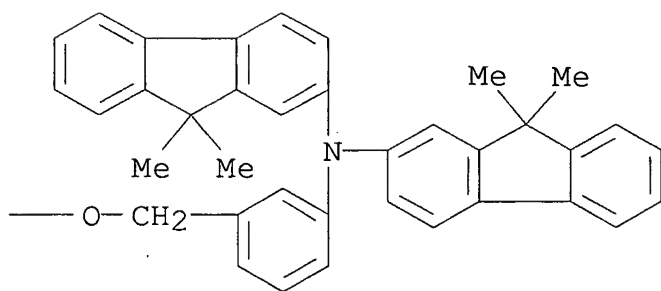


RN 672288-97-0 CAPLUS  
CN 9H-Fluoren-2-amine, N,N',N''-[ethylidynetris(4,1-phenyleneoxymethylene-3,1-phenylene)]bis[N-(9,9-dimethyl-9H-fluoren-2-yl)-9,9-dimethyl- (9CI) (CA INDEX NAME)]

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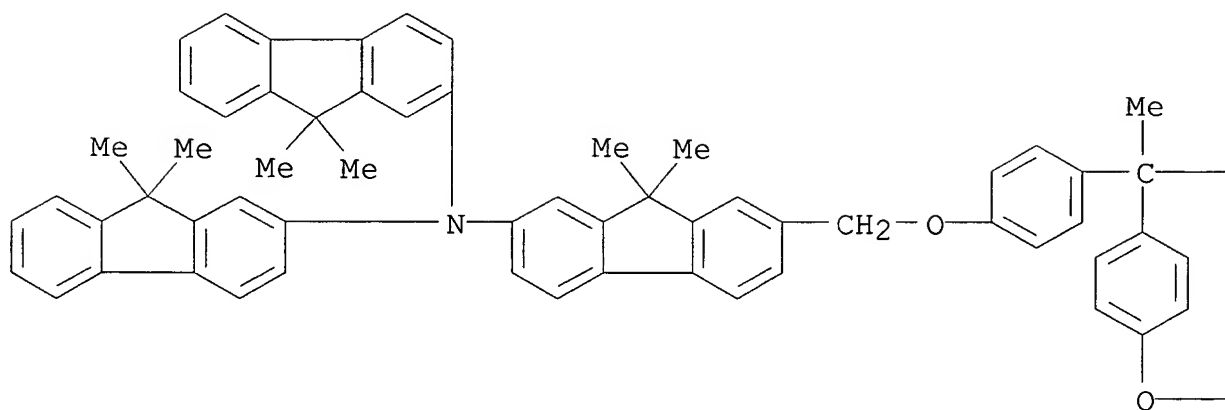
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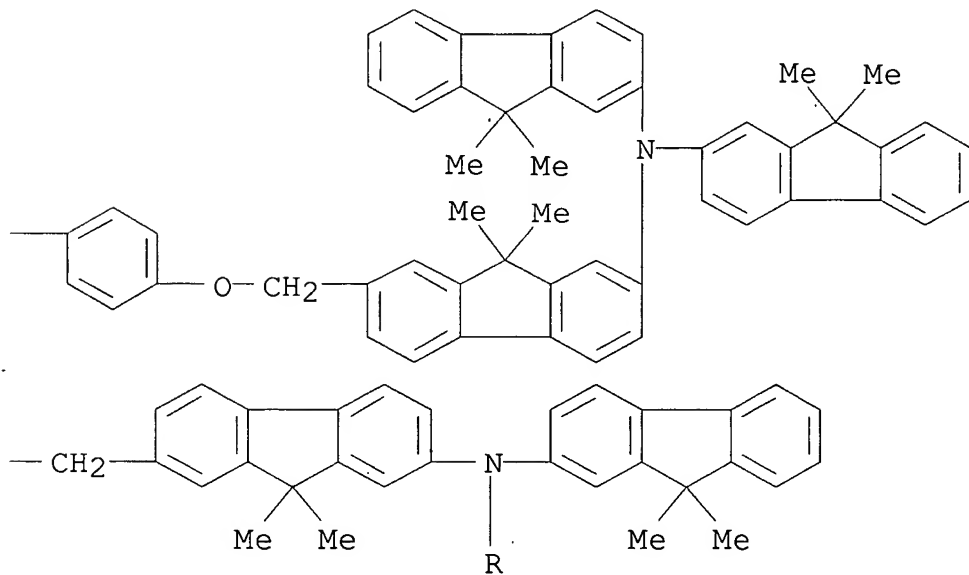
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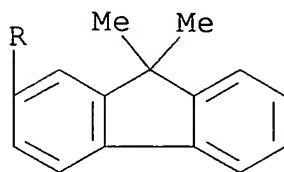
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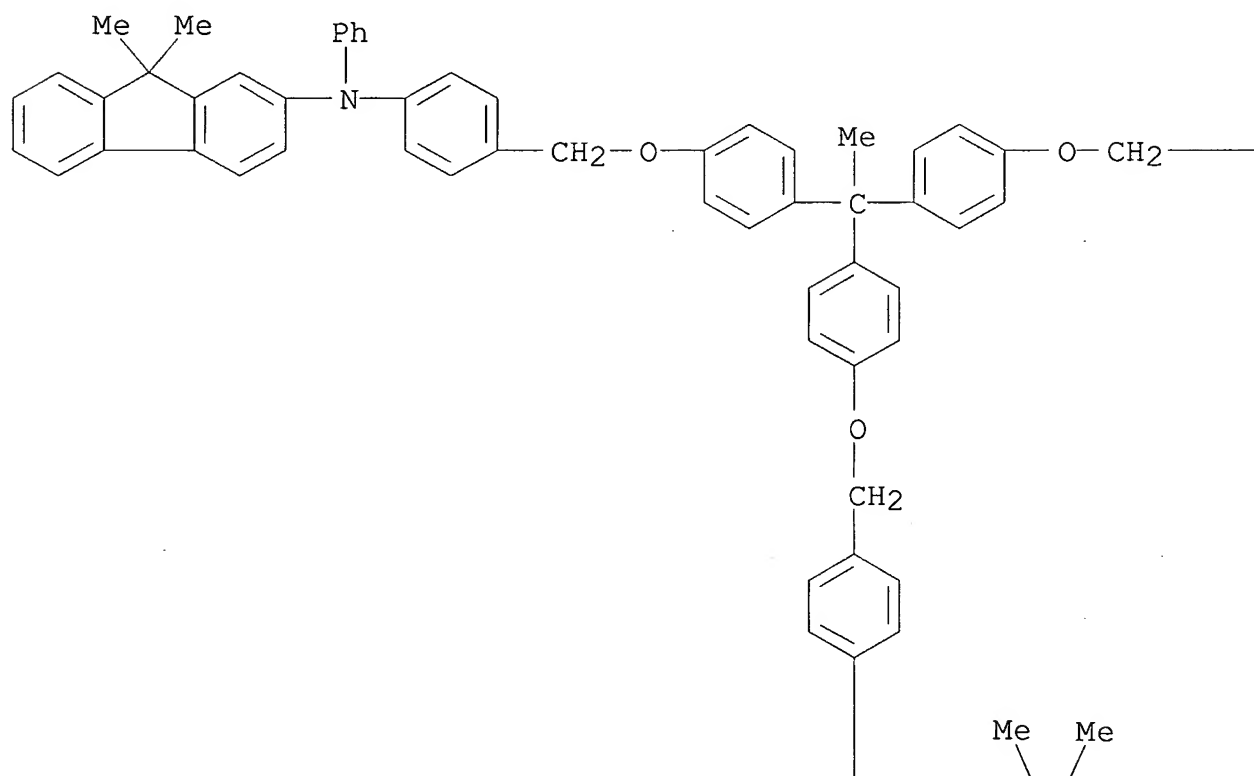


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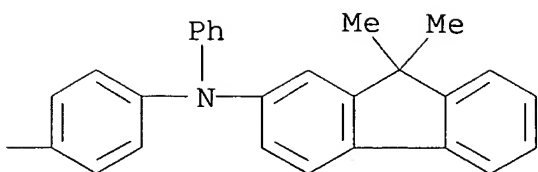


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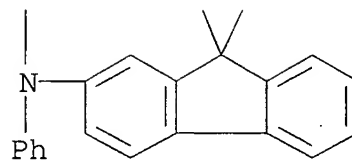
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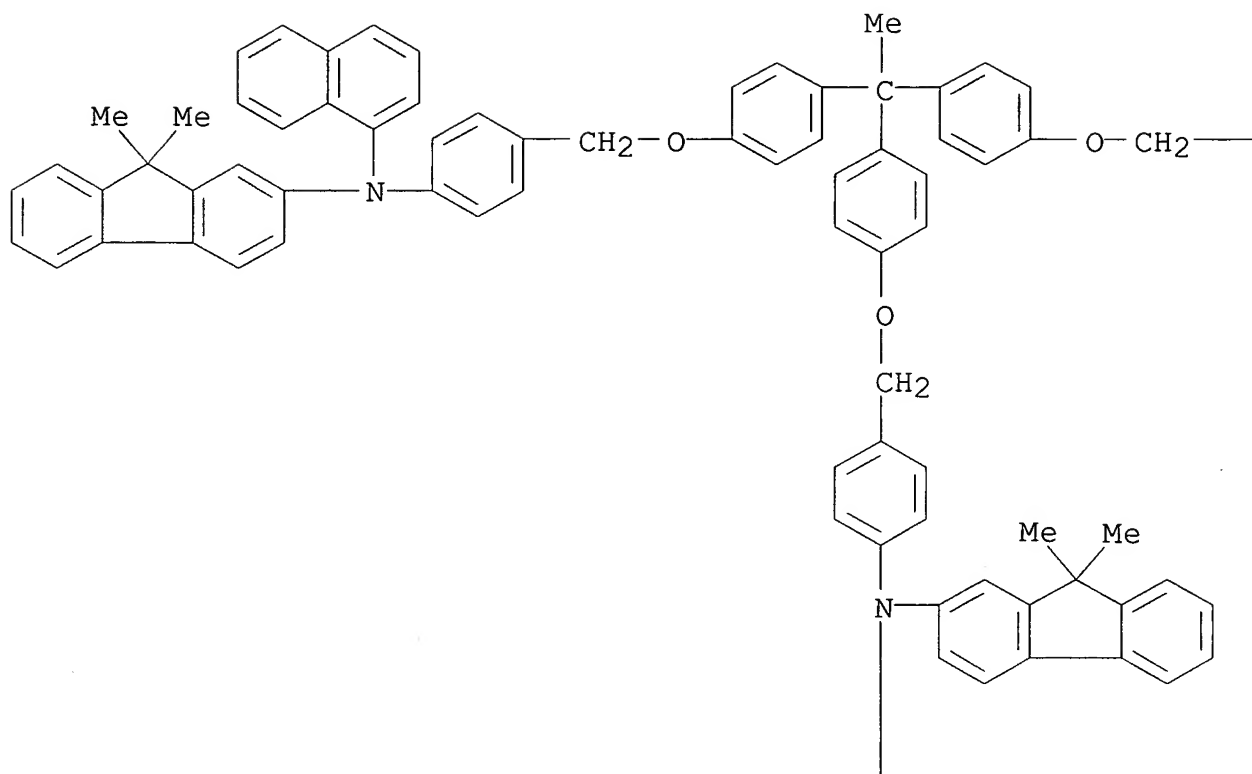
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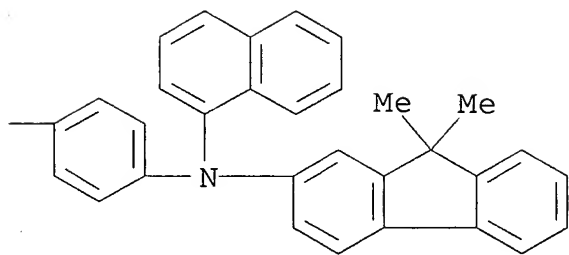
RN 672289-03-1 CAPLUS  
CN 9H-Fluoren-2-amine, N,N',N''-[ethylidynetris(4,1-phenyleneoxymethylene-4,1-phenylene)]tris[9,9-dimethyl-N-1-naphthalenyl- (9CI) (CA INDEX NAME)]



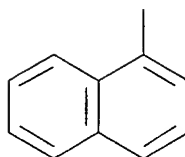
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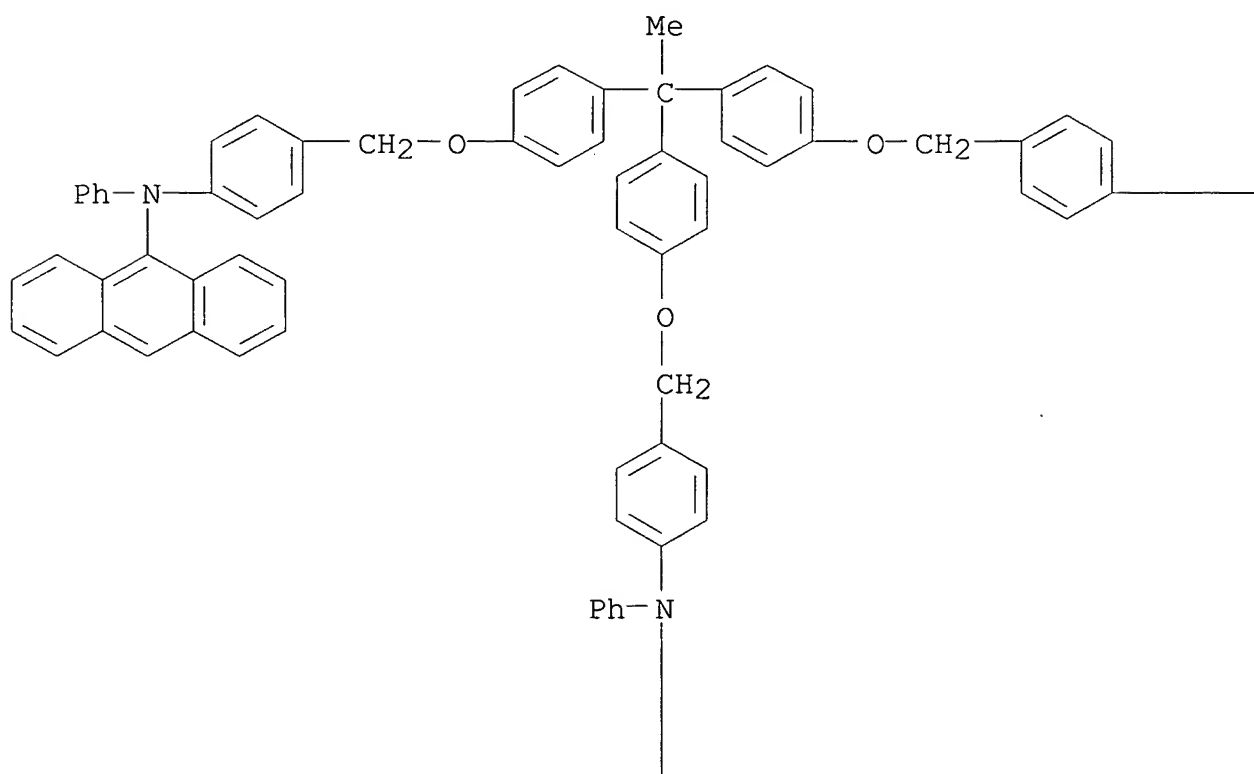


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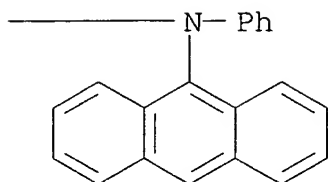


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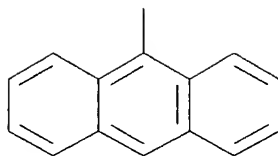
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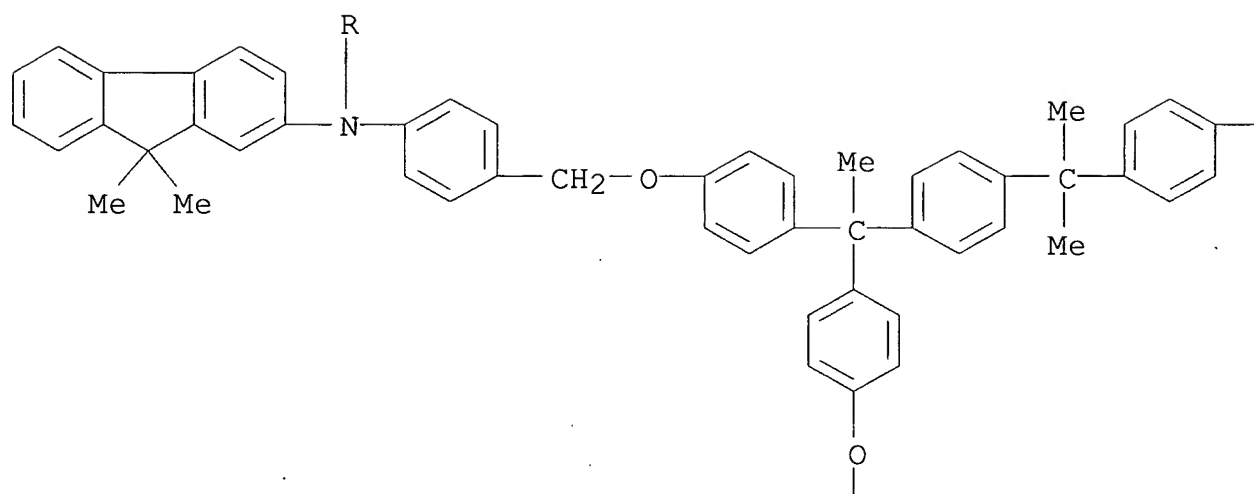
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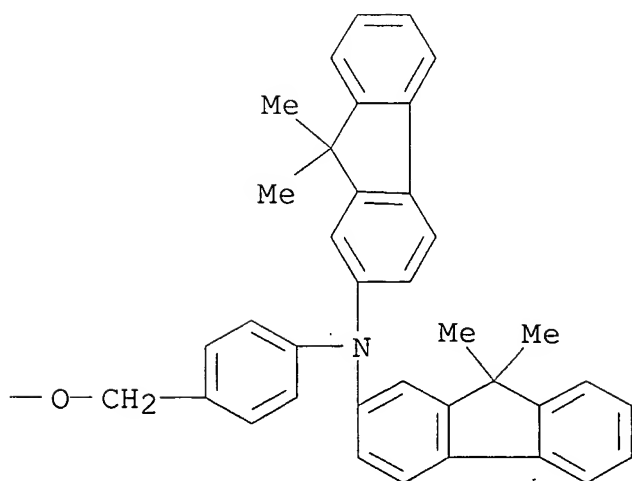
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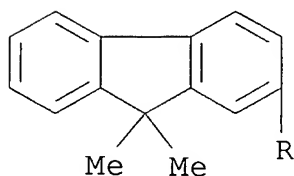
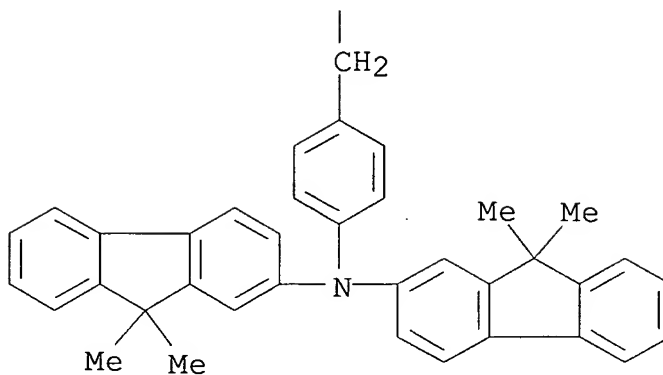
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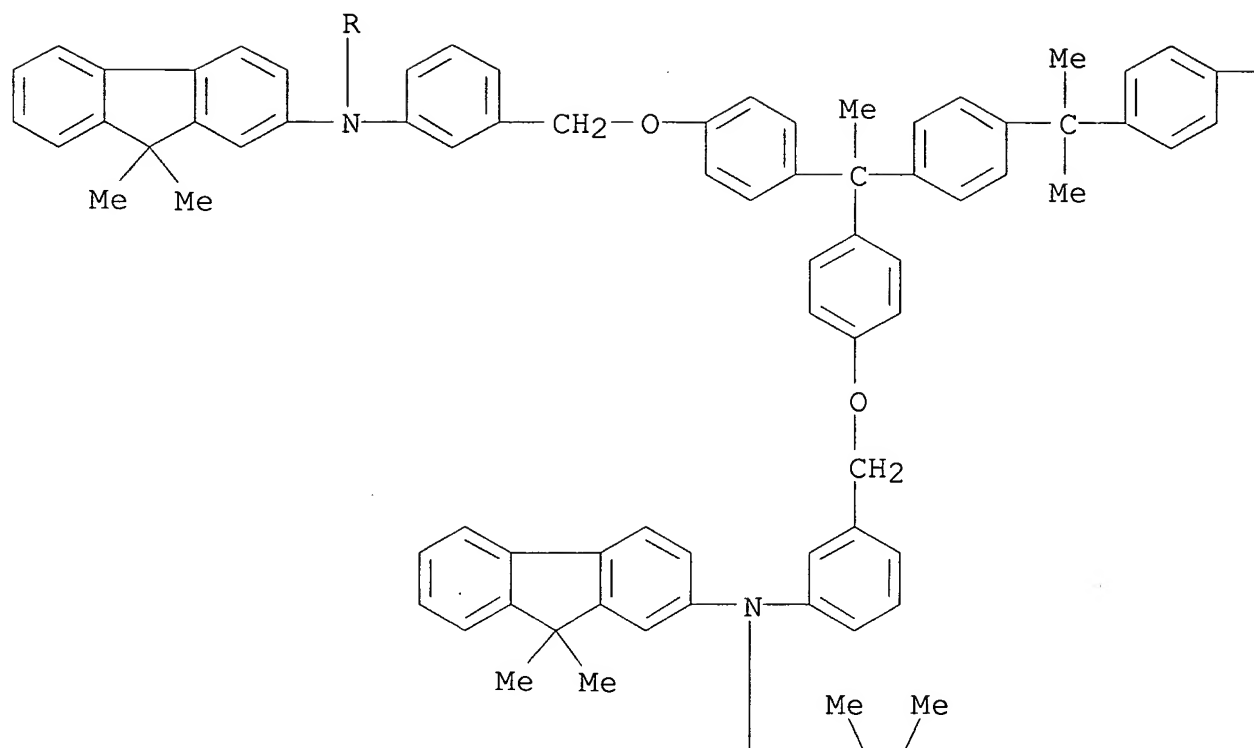


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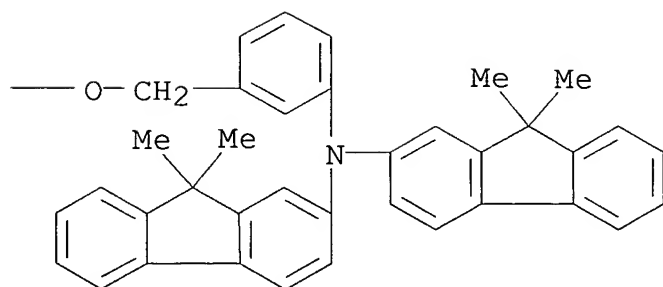


RN 672289-20-2 CAPLUS  
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 (9CI) (CA INDEX NAME)

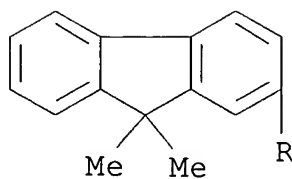
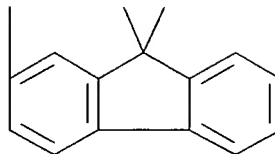
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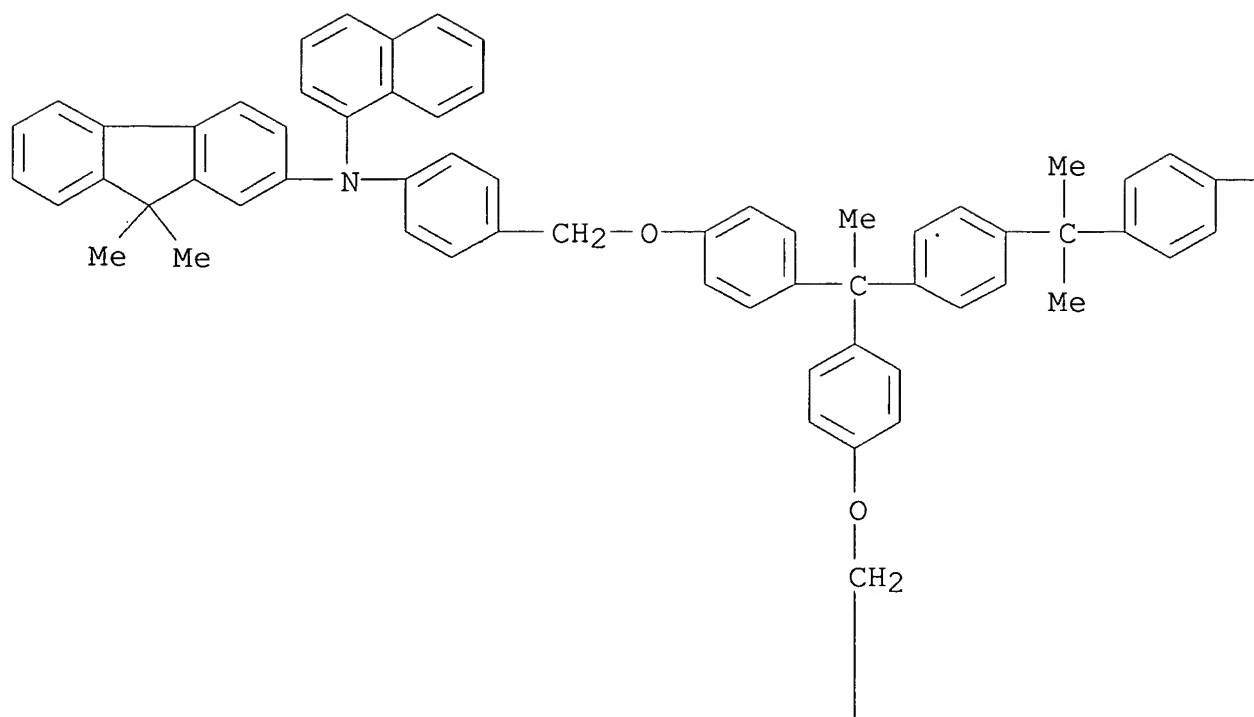
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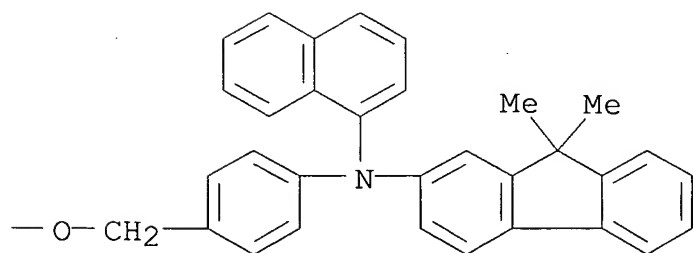
RN 672289-22-4 CAPLUS

CN 9H-Fluoren-2-amine, N,N'-[[1-[4-[1-[4-[[4-[(9,9-dimethyl-9H-fluoren-2-yl)-1-naphthalenylamino]phenyl]methoxy]phenyl]-1-methylethyl]phenyl]ethylidene]bis(4,1-phenyleneoxymethylene-4,1-phenylene)]bis[9,9-dimethyl-N-1-naphthalenyl- (9CI) (CA INDEX NAME)

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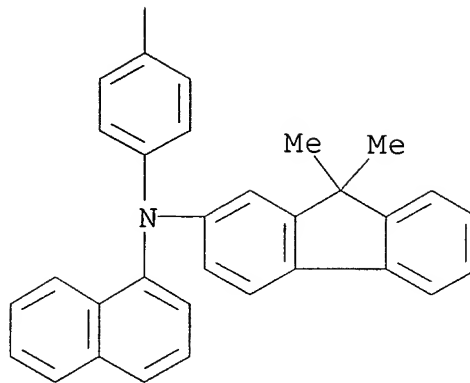


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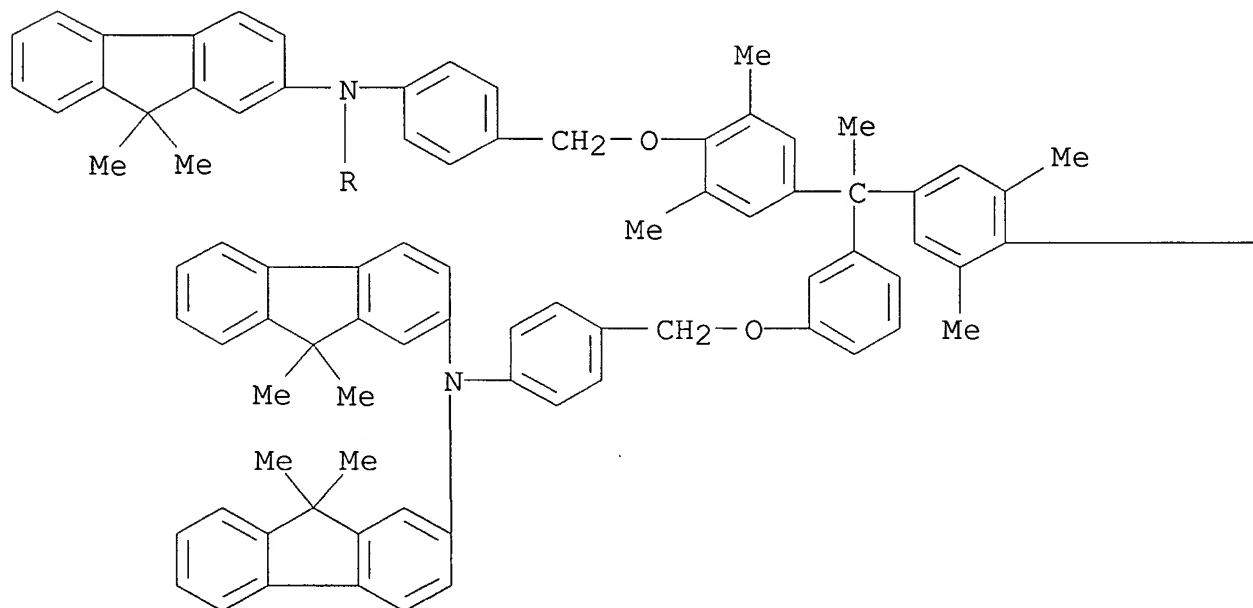
PAGE 2-A



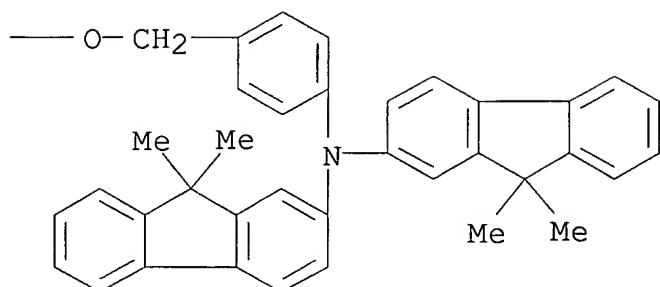
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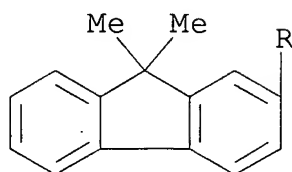
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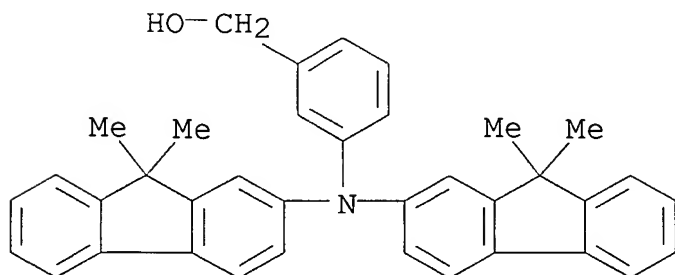


IT 672288-95-8P

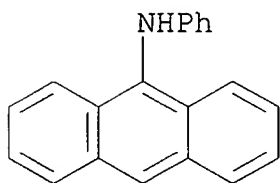
(manufacture of amorphous polyphenols as electroluminescent substances and hole transporters for organic electroluminescent devices)

RN 672288-95-8 CAPLUS

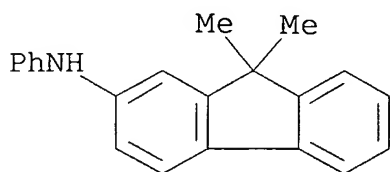
CN Benzenemethanol, 3-[bis(9,9-dimethyl-9H-fluoren-2-yl)amino]- (9CI)  
(CA INDEX NAME)



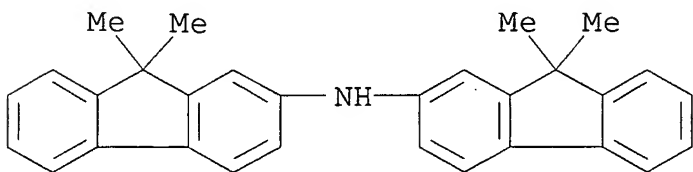
IT 15424-38-1 355832-04-1 500717-23-7  
672288-99-2 672289-02-0 672289-23-5  
(manufacture of amorphous polyphenols as electroluminescent  
substances and hole transporters for organic electroluminescent  
devices)  
RN 15424-38-1 CAPLUS  
CN 9-Anthracenamine, N-phenyl- (9CI) (CA INDEX NAME)



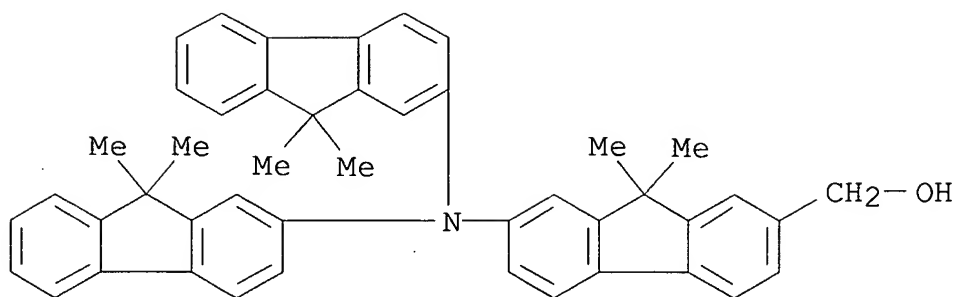
RN 355832-04-1 CAPLUS  
CN 9H-Fluoren-2-amine, 9,9-dimethyl-N-phenyl- (9CI) (CA INDEX NAME)



RN 500717-23-7 CAPLUS  
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(9CI) (CA INDEX NAME)

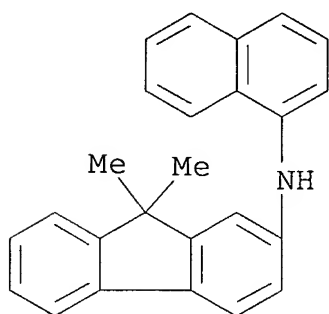


RN 672288-99-2 CAPLUS  
CN 9H-Fluorene-2-methanol, 7-[bis(9,9-dimethyl-9H-fluoren-2-yl)amino]-  
9,9-dimethyl- (9CI) (CA INDEX NAME)



RN 672289-02-0 CAPLUS

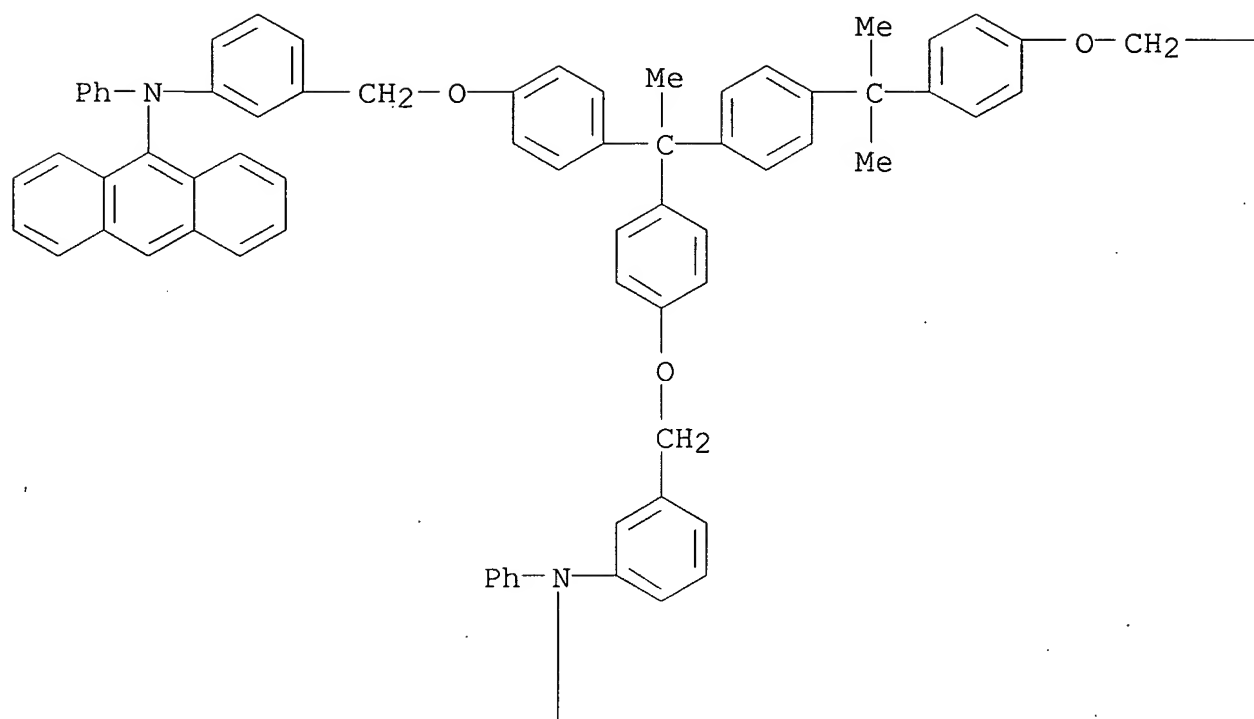
CN 9H-Fluoren-2-amine, 9,9-dimethyl-N-1-naphthalenyl- (9CI) (CA INDEX NAME)



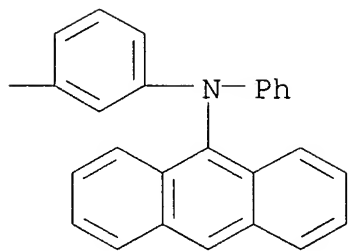
RN 672289-23-5 CAPLUS

CN 9-Anthracenamine, N,N'-[[1-[4-[1-[4-[[3-(9-anthracenylphenylamino)phenyl]methoxy]phenyl]-1-methylethyl]phenyl]ethylidene]bis(4,1-phenyleneoxy)methylene-3,1-phenylene]]bis[N-phenyl- (9CI) (CA INDEX NAME)

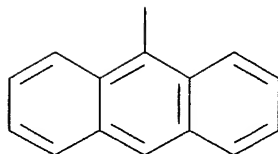
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- IC ICM C07C217-76  
ICS C07C213-02; C07C213-06; C07D209-86; C09K011-06; H05B033-14;  
H05B033-22
- CC 73-11 (Optical, Electron, and Mass Spectroscopy and  
Other Related Properties)  
Section cross-reference(s): 25
- IT **Luminescent** substances  
(electroluminescent; manufacture of amorphous polyphenols as  
electroluminescent substances and hole transporters for organic  
electroluminescent devices)
- IT 672288-96-9P 672288-97-0P 672289-00-8P  
672289-01-9P 672289-03-1P 672289-06-4P  
672289-09-7P 672289-13-3P 672289-18-8P  
672289-20-2P 672289-22-4P 672289-25-7P  
(manufacture of amorphous polyphenols as electroluminescent  
substances and hole transporters for organic electroluminescent  
devices)
- IT 110726-28-8P 672288-94-7P 672288-95-8P  
(manufacture of amorphous polyphenols as electroluminescent  
substances and hole transporters for organic electroluminescent  
devices)
- IT 589-15-1, 4-Bromobenzyl bromide 15424-38-1 24398-88-7,  
Ethyl 3-bromobenzoate 27955-94-8, 1,1,1-Tris (4-hydroxyphenyl)  
ethane 355832-04-1 500717-23-7  
672288-99-2 672289-02-0 672289-07-5  
672289-11-1 672289-23-5  
(manufacture of amorphous polyphenols as electroluminescent  
substances and hole transporters for organic electroluminescent  
devices)

L40 ANSWER 21 OF 65 CAPLUS COPYRIGHT 2005 ACS on STN

ACCESSION NUMBER: 2004:203906 CAPLUS

DOCUMENT NUMBER: 140:261172

TITLE: Organic light-emitting  
devicesINVENTOR(S): Saito, Akihito; Hiraoka, Mizuho; Suzuki,  
Koichi; Senoo, Akihiro; Tanabe, Hiroshi;  
Yamada, Naoki; Negishi, Chika

PATENT ASSIGNEE(S): Canon Kabushiki Kaisha, Japan

SOURCE: PCT Int. Appl., 84 pp.  
 CODEN: PIXXD2  
 DOCUMENT TYPE: Patent  
 LANGUAGE: English  
 FAMILY ACC. NUM. COUNT: 1  
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2004020548	A1	20040311	WO 2003-JP10782	2003 0826

W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW

RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG

JP 2004087363	A2	20040318	JP 2002-248354
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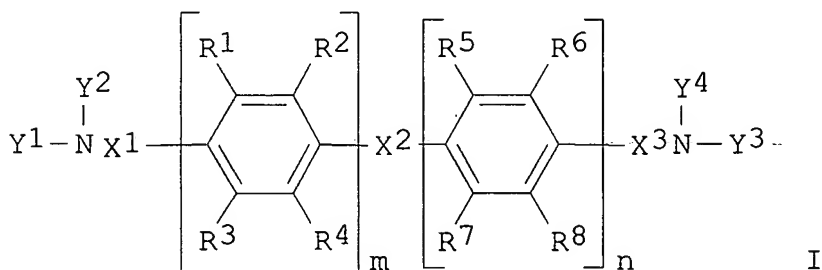
PRIORITY APPLN. INFO.:

JP 2002-248354

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2002  
0828

OTHER SOURCE(S): MARPAT 140:261172  
 GI



AB Organic light-emitting devices comprising at

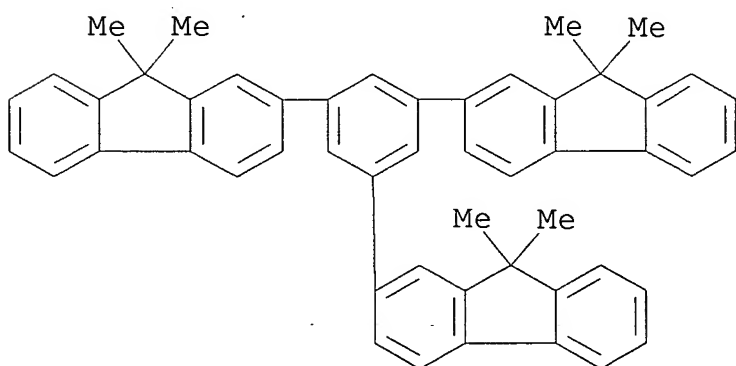
least a pair of electrodes consisting of an anode and a cathode and  $\geq 1$  organic compound-containing **layers** sandwiched between the electrodes are described in which  $\geq 1$  organic compound-containing **layer** contains  $\geq 1$  compound selected from the group consisting of the compds. represented by the general formula I (Y1 and Y2, and Y3 and Y4 may bond to form rings; X1 and Y1 and/or Y2, and X3 and Y3 and/or Y4 may bond to form rings; X1, X2 and X3 = independently selected direct bonds or divalent groups selected from alkylene, aralkylene, arylene, divalent heterocyclic, alkenylene, imino,  $-\text{SiH}_2-$ , silylene, carbonyl, ether, and thioether groups having no substituents or a substituent which can include a linking group consisting of (un)substituted arylene or divalent heterocyclic groups; Y1-4 = independently selected alkyl, aralkyl, aryl, heterocyclic, amino, silyl, alkylene, aralkylene, alkenylene, imino,  $-\text{SiH}_2-$ , silylene, carbonyl, ether, and thioether groups having no substituents or a substituent which can include a linking group consisting of (un)substituted arylene or divalent heterocyclic groups; R1-4 = independently selected H, halogen, (un)substituted alkyl, (un)substituted aralkyl and (un)substituted arylgroups; and  $m + n = 0-10$ ) in a host.

IT 441352-90-5 475461-36-0 569343-08-4  
608130-98-9 668994-19-2 668994-20-5

(organic light-emitting devices using hosts  
doped with Ph group-containing diamine derivs.)

RN 441352-90-5 CAPLUS

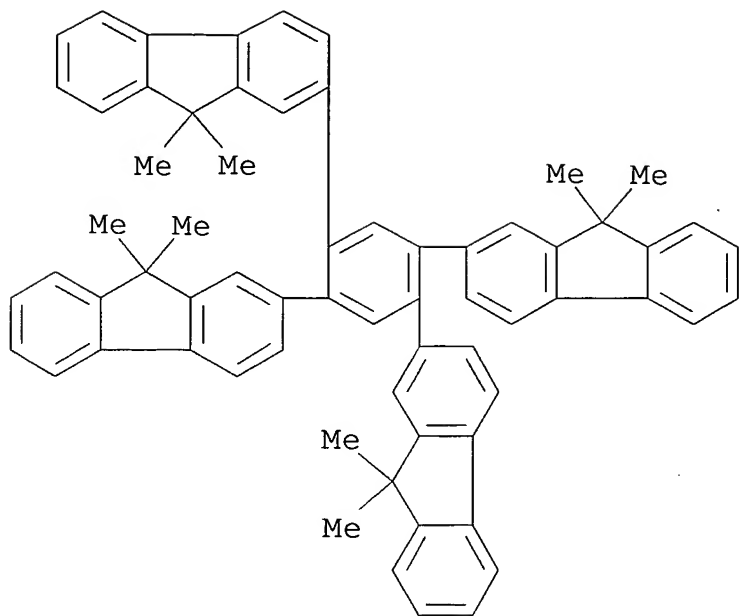
CN 9H-Fluorene, 2,2',2''-(1,3,5-benzenetriyl)tris[9,9-dimethyl- (9CI)  
(CA INDEX NAME)



RN 475461-36-0 CAPLUS

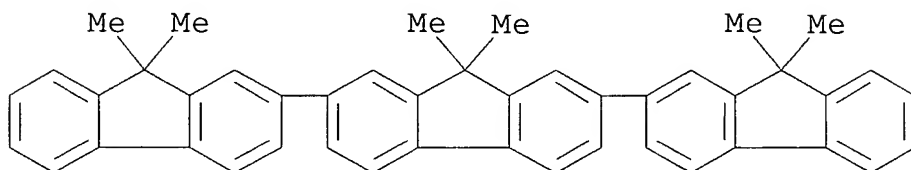
CN 9H-Fluorene, 2,2',2'',2'''-(1,2,4,5-benzenetetrayl)tetrakis[9,9-dimethyl- (9CI) (CA INDEX NAME)





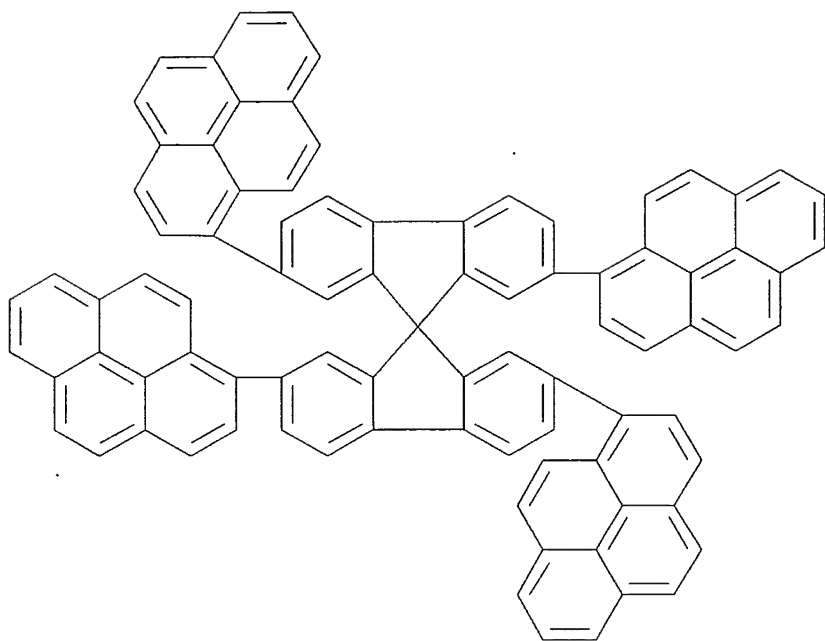
RN 569343-08-4 CAPLUS

CN 2,2':7',2''-Ter-9H-fluorene, 9,9,9',9',9'',9''-hexamethyl- (9CI)  
(CA INDEX NAME)



RN 608130-98-9 CAPLUS

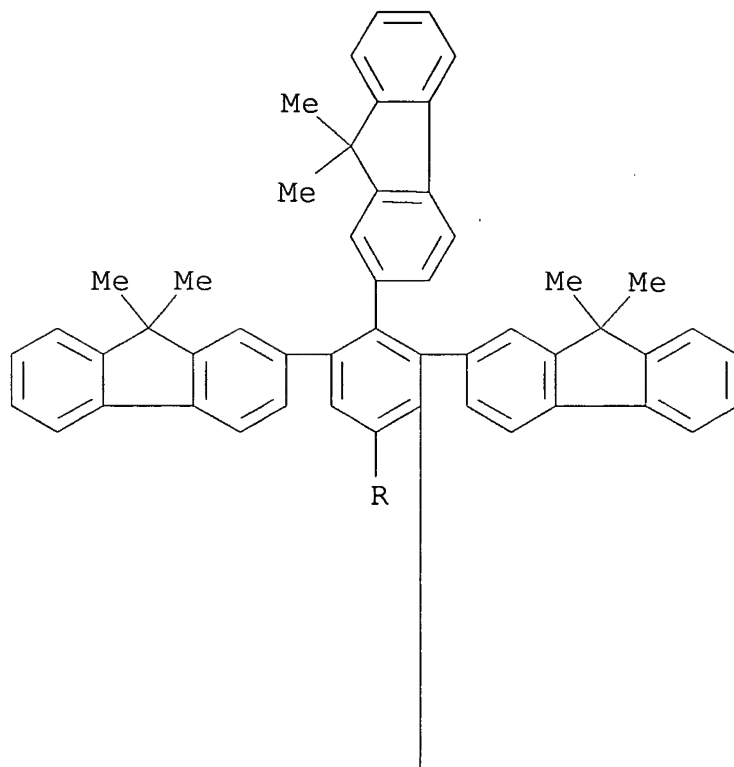
CN 9,9'-Spirobi[9H-fluorene], 2,2',7,7'-tetra-1-pyrenyl- (9CI) (CA  
INDEX NAME)



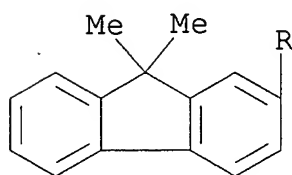
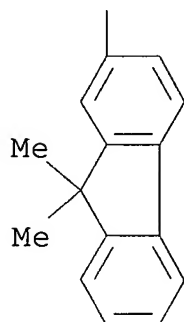
RN 668994-19-2 CAPLUS

CN 9H-Fluorene, 2,2',2'',2''',2''''-(1,2,3,4,5-benzenepentayl)pentakis[9,9-dimethyl- (9CI) (CA INDEX NAME)

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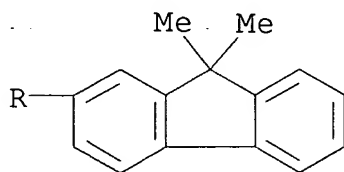
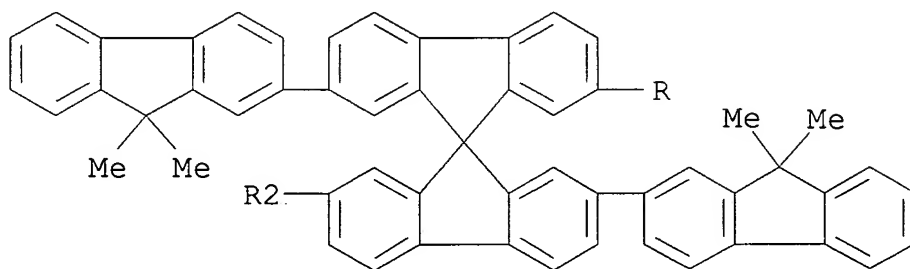


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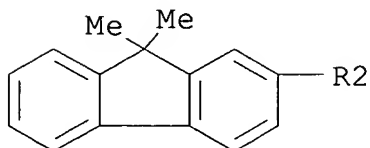


RN 668994-20-5 CAPLUS  
CN 9,9'-Spirobi[9H-fluorene], 2,2',7,7'-tetrakis(9,9-dimethyl-9H-fluoren-2-yl)- (9CI) (CA INDEX NAME)

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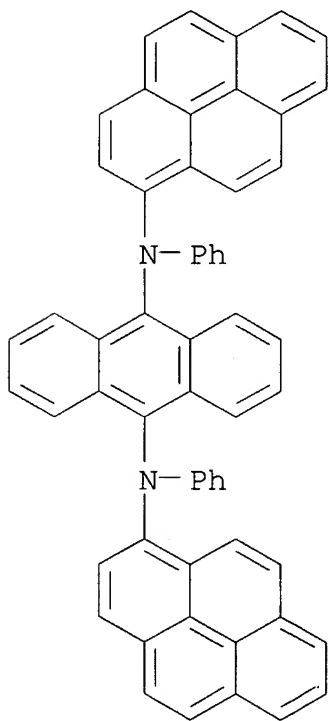


IT 189263-91-0 194296-06-5 669771-40-8  
669771-56-6

(organic **light-emitting** devices using hosts  
doped with Ph group-containing diamine derivs.)

RN 189263-91-0 CAPLUS

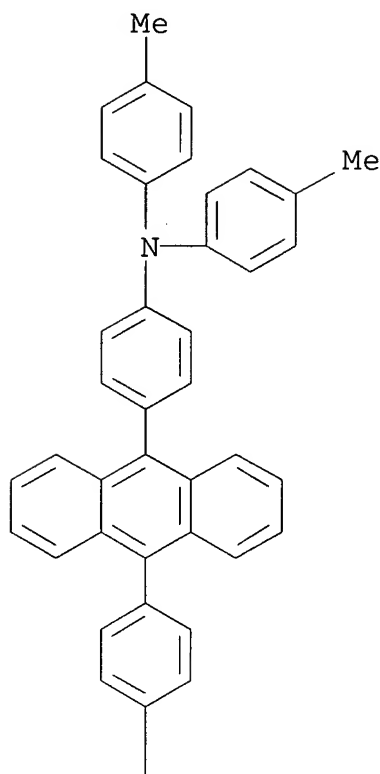
CN 9,10-Anthracenediamine, N,N'-diphenyl-N,N'-di-1-pyrenyl- (9CI)  
(CA INDEX NAME)



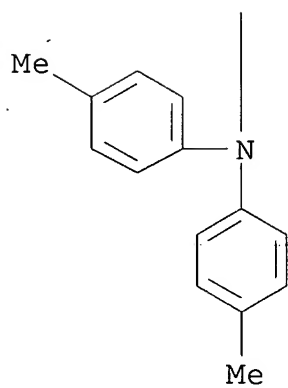
RN 194296-06-5 CAPLUS

CN Benzenamine, 4,4'-(9,10-anthracenediyl)bis[N,N-bis(4-methylphenyl)-  
(9CI) (CA INDEX NAME)

PAGE 1-A

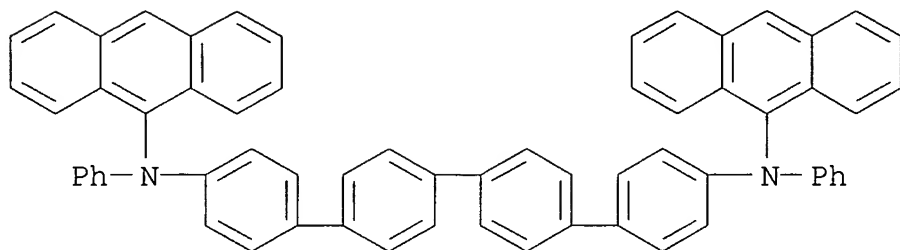


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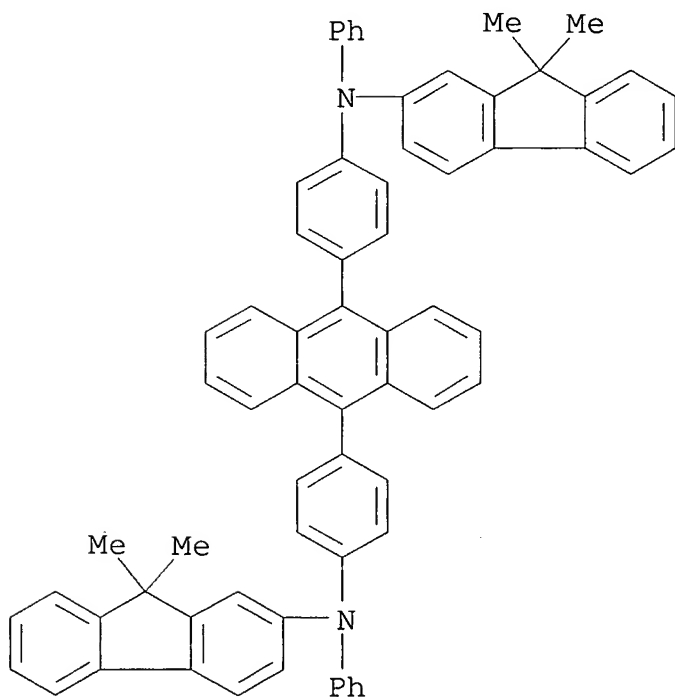
RN 669771-40-8 CAPLUS  
CN [1,1':4',1'':4'',1'''-Quaterphenyl]-4,4'''-diamine,

N,N'-di-9-anthracenyl-N,N'-diphenyl- (9CI) (CA INDEX NAME)



RN 669771-56-6 CAPLUS

CN 9H-Fluoren-2-amine, N,N'-(9,10-anthracenediyl)di-4,1-phenylene)bis[9,9-dimethyl-N-phenyl- (9CI) (CA INDEX NAME)



IC ICM C09K011-06

ICS H05B033-14

CC 73-11 (Optical, Electron, and Mass Spectroscopy and Other Related Properties)

Section cross-reference(s): 42

ST phenyl group contg diamine deriv org light emitting device

IT Luminescent substances  
(organic light-emitting devices using hosts  
doped with Ph group-containing diamine derivs.)

IT Electroluminescent devices  
(organic; organic light-emitting devices using  
hosts doped with Ph group-containing diamine derivs.)

IT 441352-90-5 475461-36-0 569343-08-4  
608130-98-9 668994-18-1 668994-19-2  
668994-20-5  
(organic light-emitting devices using hosts  
doped with Ph group-containing diamine derivs.)

IT 189263-91-0 194296-06-5 669016-36-8  
669771-38-4 669771-40-8 669771-43-1 669771-48-6  
669771-56-6  
(organic light-emitting devices using hosts  
doped with Ph group-containing diamine derivs.)

REFERENCE COUNT: 17 THERE ARE 17 CITED REFERENCES AVAILABLE  
FOR THIS RECORD. ALL CITATIONS AVAILABLE  
IN THE RE FORMAT

L40 ANSWER 22 OF 65 CAPLUS COPYRIGHT 2005 ACS on STN

ACCESSION NUMBER: 2004:203783 CAPLUS

DOCUMENT NUMBER: 140:261171

TITLE: Condensed polycyclic compounds and organic  
light-emitting device using  
the same

INVENTOR(S): Suzuki, Koichi; Kawai, Tatsundo; Senoo,  
Akihiro; Yamada, Naoki; Saito, Akihito;  
Okajima, Maki

PATENT ASSIGNEE(S): Canon Kabushiki Kaisha, Japan

SOURCE: PCT Int. Appl., 77 pp.  
CODEN: PIXXD2

DOCUMENT TYPE: Patent

LANGUAGE: English

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
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WO 2004020371	A1	20040311	WO 2003-JP10783	

2003  
0826

W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA,  
CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI,  
GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, KE, KG, KP,  
KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN,  
MW, MX, MZ, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC,



SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG,  
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AZ, BY, KG, KZ, MD, RU, TJ, TM, AT, BE, BG, CH, CY, CZ,  
DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL,  
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GQ, GW, ML, MR, NE, SN, TD, TG

JP 2004107326

A2

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JP 2003-291191

2003  
0811

PRIORITY APPLN. INFO.:

JP 2002-246600

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2002  
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JP 2003-291191

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2003  
0811

OTHER SOURCE(S):

MARPAT 140:261171

GI

\* STRUCTURE DIAGRAM TOO LARGE FOR DISPLAY - AVAILABLE VIA OFFLINE PRINT  
\*

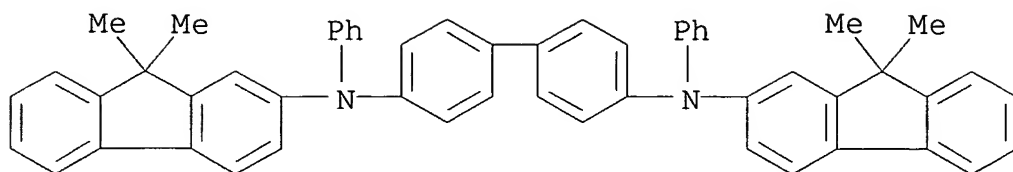
AB The invention is directed to the preparation of condensed polycyclic compds. I as (component) of organic **light-emitting** devices that are extremely efficient in a light output with high luminance and is extremely durable [R1 = H, halo, cyano, substituted amino or (un)substituted alkyl, aralkyl, aryl; Ar1 to Ar5 = independently (un)substituted condensed polycyclic aromatic group or condensed polycyclic heterocyclic group]. For example, Suzuki cross-coupling of hexabromobenzene with 9,9-dimethylfluorene-2-boronic acid gave 42% II and 17% all substituted 9,9-dimethylfluorenyl II. A device fabricated using II in the active **layer** exhibited blue emission with a luminance of 2800 cd/m2 at a c.d. of 10 mA/cm2.

IT 361486-60-4 669773-54-0 669773-55-1  
669773-58-4 669773-60-8 669773-63-1  
669773-65-3 669773-66-4 669773-74-4  
669773-77-7

(preparation of condensed polycyclic compds. and their use to the manufacture of organic **light-emitting** devices)

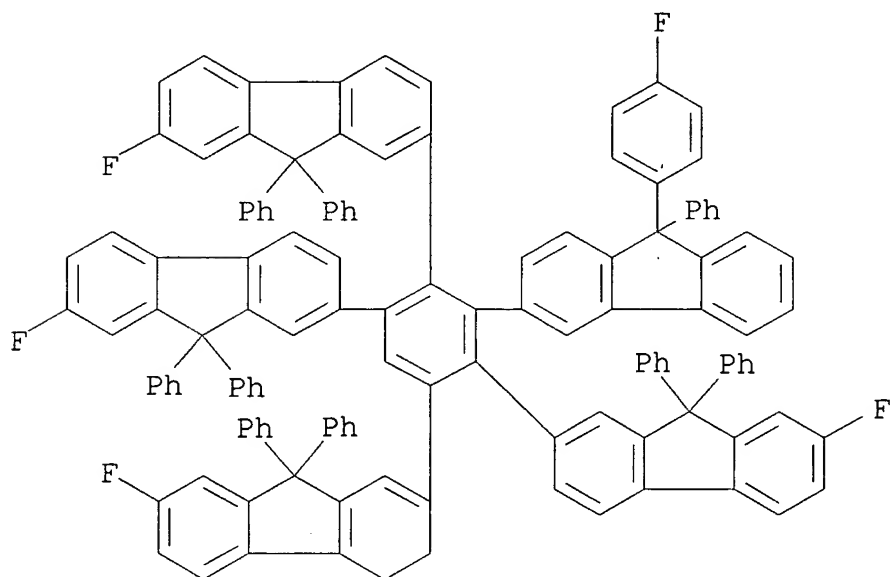
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CN [1,1'-Biphenyl]-4,4'-diamine, N,N'-bis(9,9-dimethyl-9H-fluoren-2-yl)-N,N'-diphenyl- (9CI) (CA INDEX NAME)



RN 669773-54-0 CAPLUS

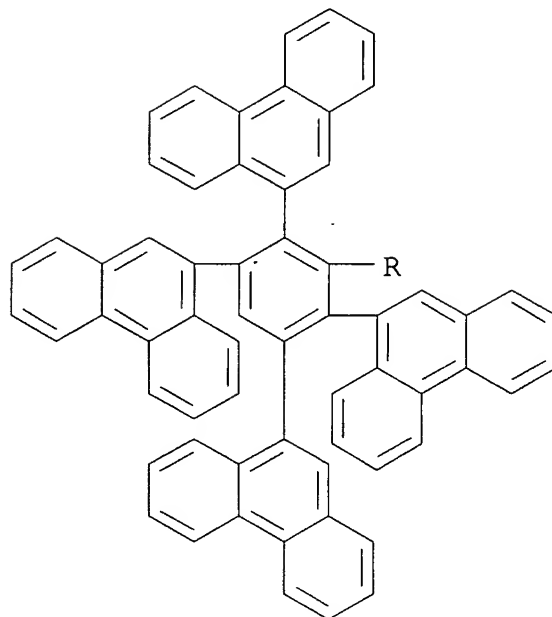
CN 3H-Fluorene, 7-fluoro-4,9-dihydro-9,9-diphenyl-2-[2,4,5-tris(7-fluoro-9,9-diphenyl-9H-fluoren-2-yl)-3-[9-(4-fluorophenyl)-9-phenyl-9H-fluoren-3-yl]phenyl]- (9CI) (CA INDEX NAME)



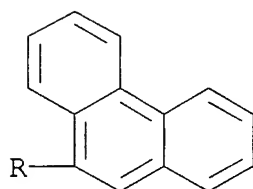
RN 669773-55-1 CAPLUS

CN Phenanthrene, 9,9',9'',9''',9''''-(1,2,3,4,5-benzenepentayl)pentakis- (9CI) (CA INDEX NAME)

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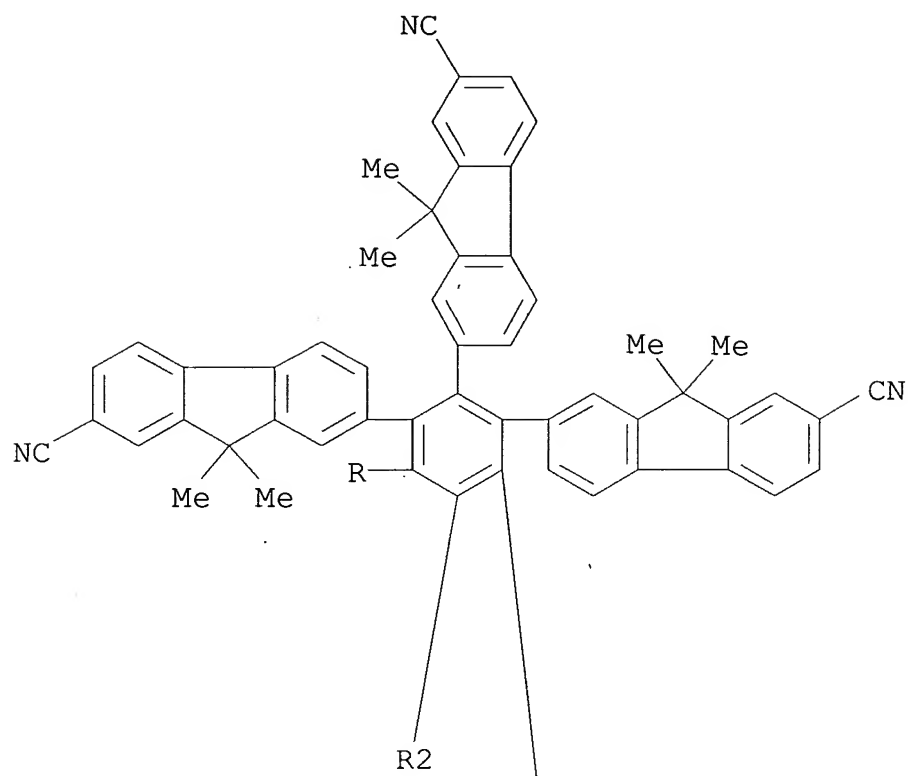


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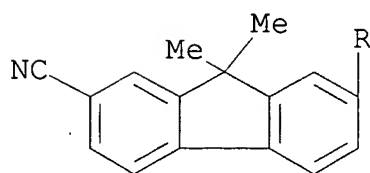
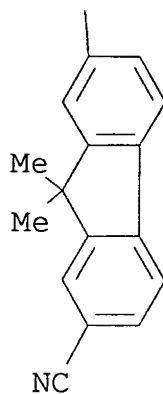


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 CN 9H-Fluorene-2-carbonitrile, 7,7',7'',7''',7''',7''''-(  
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 NAME)

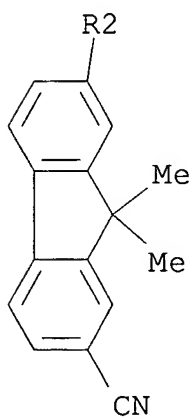
PAGE 1-A



PAGE 2-A

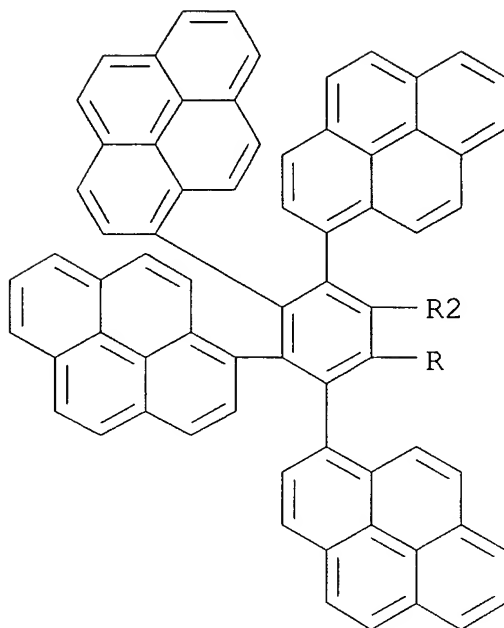


PAGE 3-A

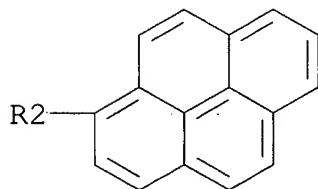
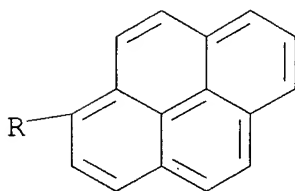


RN 669773-60-8 CAPLUS  
 CN Pyrene, 1,1',1'',1''',1'''',1''''',1''''''-(1,2,3,4,5,6-benzenehexayl)hexakis- (9CI) (CA INDEX NAME)

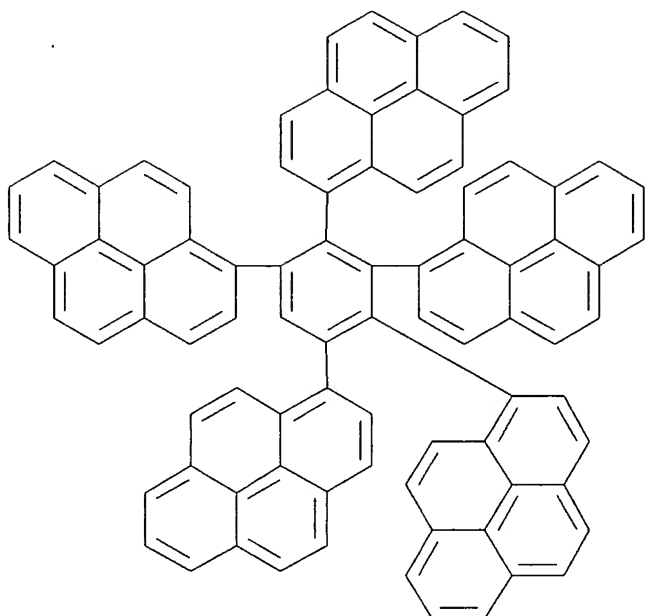
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PAGE 2-A



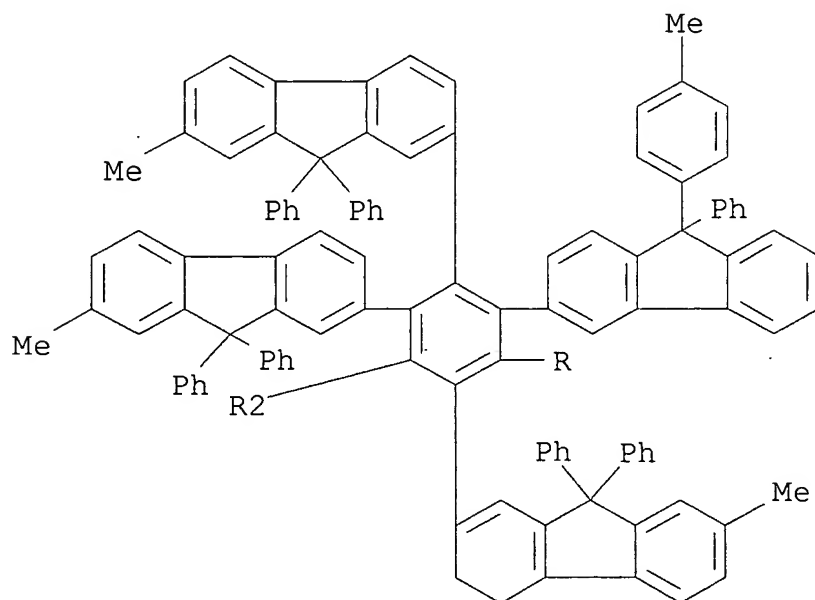
RN 669773-63-1 CAPLUS  
CN Pyrene, 1,1',1'',1''',1''''-(1,2,3,4,5-benzenepentayl)pentakis-  
(9CI) (CA INDEX NAME)



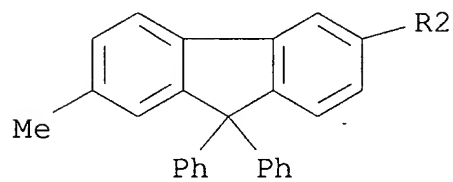
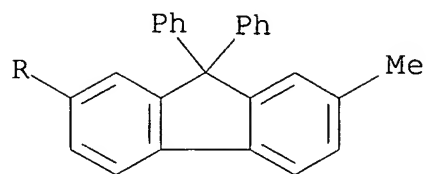
RN 669773-65-3 CAPLUS

CN 3H-Fluorene, 4,9-dihydro-7-methyl-9,9-diphenyl-2-[3,4,6-tris(7-methyl-9,9-diphenyl-9H-fluoren-2-yl)-2-(7-methyl-9,9-diphenyl-9H-fluoren-3-yl)-5-[9-(4-methylphenyl)-9-phenyl-9H-fluoren-3-yl]phenyl]- (9CI) (CA INDEX NAME)

PAGE 1-A

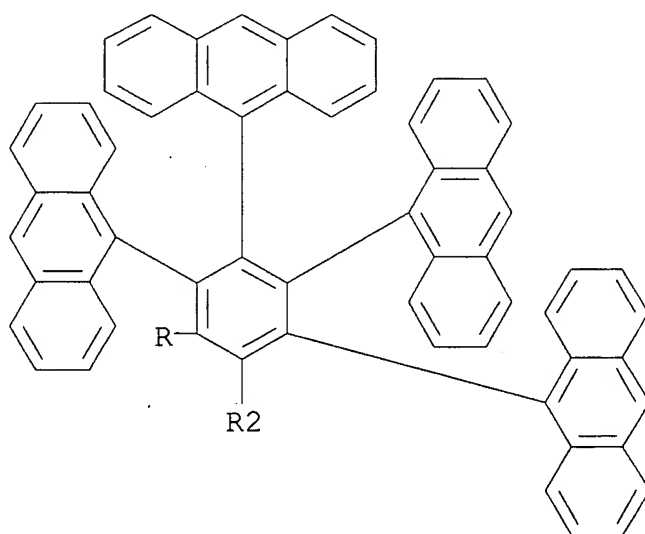


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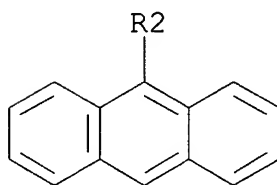
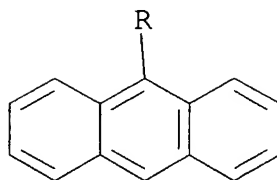
RN 669773-66-4 CAPLUS  
CN Anthracene, 9,9',9'',9''',9''',9''''-(1,2,3,4,5,6-benzenehexayl)hexakis- (9CI) (CA INDEX NAME)

PAGE 1-A



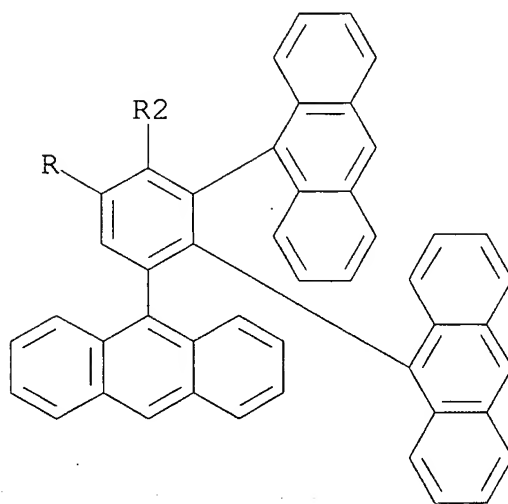


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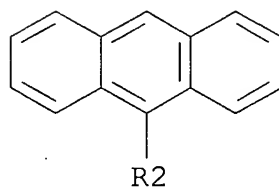
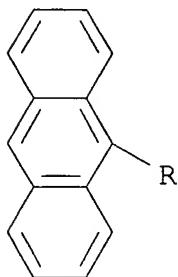


RN 669773-74-4 CAPLUS  
 CN Anthracene, 9,9',9'',9''',9''''-(1,2,3,4,5-benzenepentayl)pentakis-  
 (9CI) (CA INDEX NAME)

PAGE 1-A

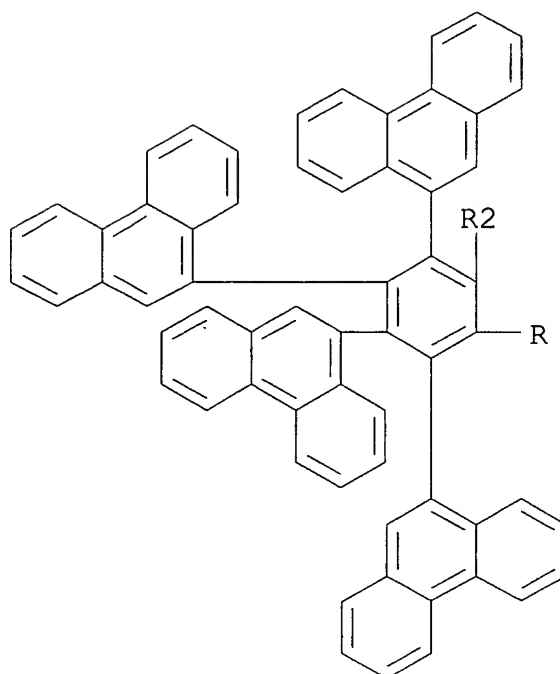


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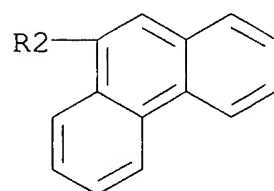
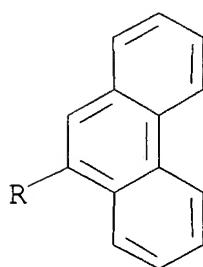


RN 669773-77-7 CAPLUS  
 CN Phenanthrene, 9,9',9'',9''',9'''',9'''''-(1,2,3,4,5,6-benzenehexayl)hexakis- (9CI) (CA INDEX NAME)

PAGE 1-A



PAGE 2-A



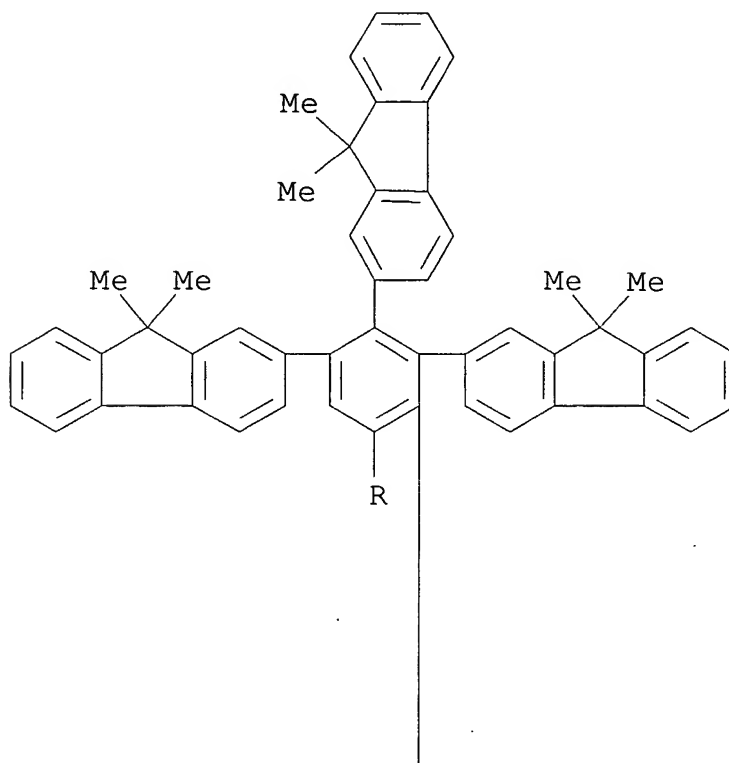
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(preparation of condensed polycyclic compds. and their use to the  
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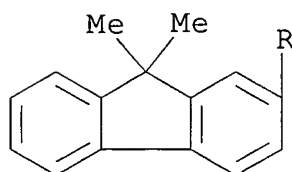
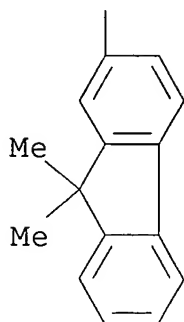
RN 668994-19-2 CAPLUS

CN 9H-Fluorene, 2,2',2'',2''',2''''-(1,2,3,4,5-  
benzenepentayl)pentakis[9,9-dimethyl- (9CI) (CA INDEX NAME)

PAGE 1-A

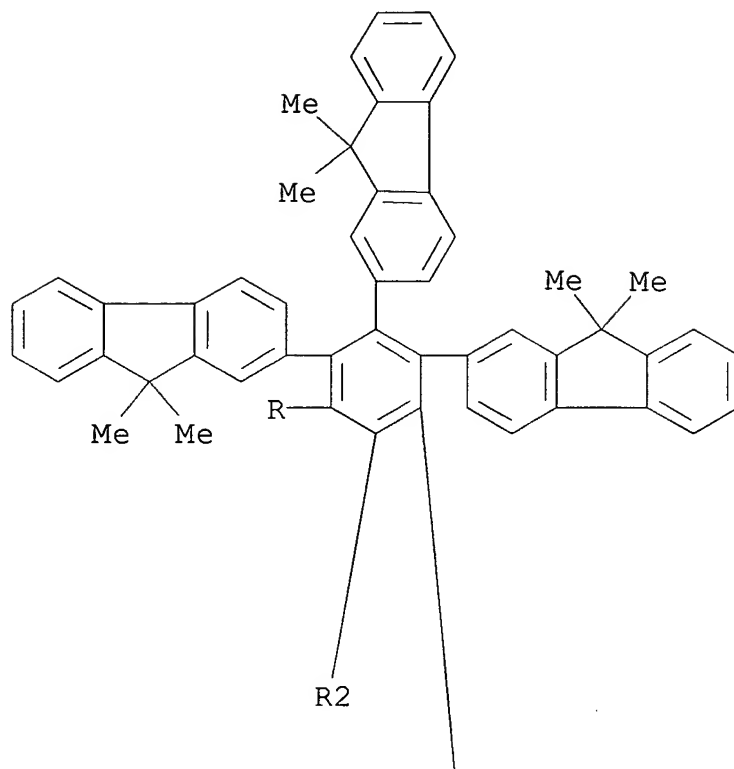


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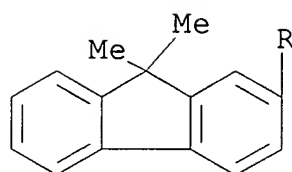
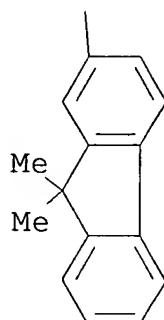


RN 669773-52-8 CAPLUS  
CN 9H-Fluorene, 2,2',2'',2''',2''''',2''''''-(1,2,3,4,5,6-benzenehexayl)hexakis[9,9-dimethyl- (9CI) (CA INDEX NAME)

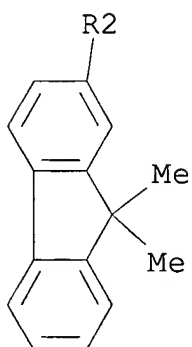
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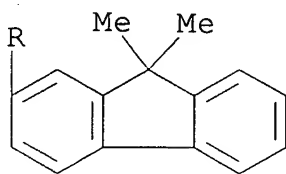
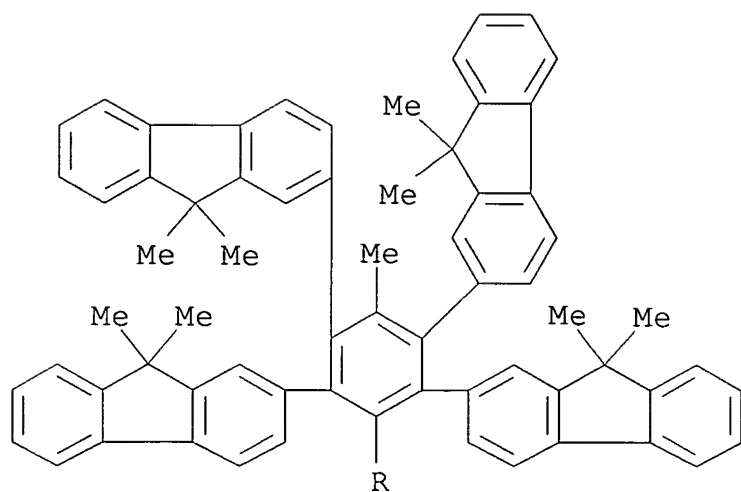
PAGE 2-A



PAGE 3-A



RN 669773-53-9 CAPLUS  
 CN 9H-Fluorene, 2,2',2'',2''',2''''-(6-methyl-1,2,3,4,5-benzenepentayl)pentakis[9,9-dimethyl- (9CI) (CA INDEX NAME)



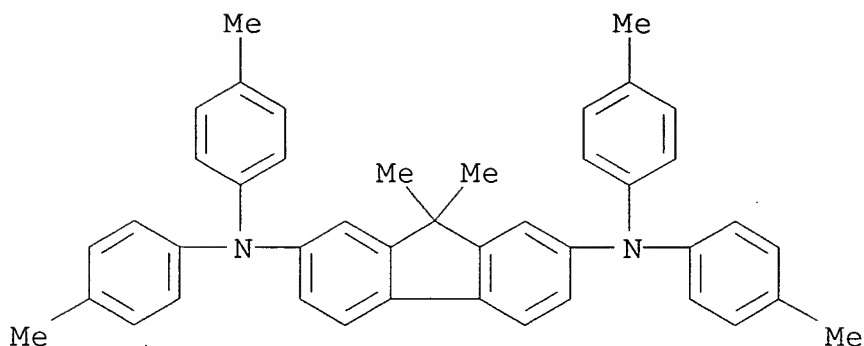
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(preparation of condensed polycyclic compds. and their use to the  
 manufacture of organic **light-emitting** devices)

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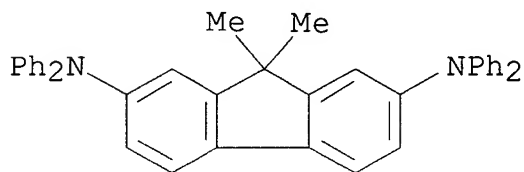
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 methylphenyl)- (9CI) (CA INDEX NAME)





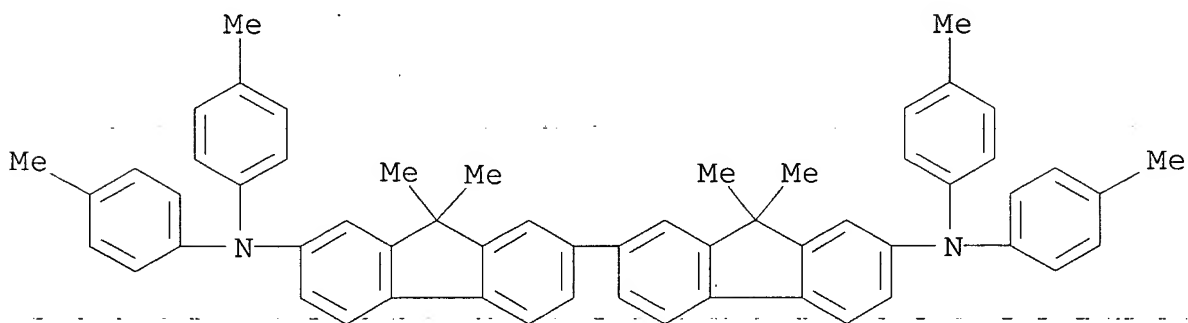
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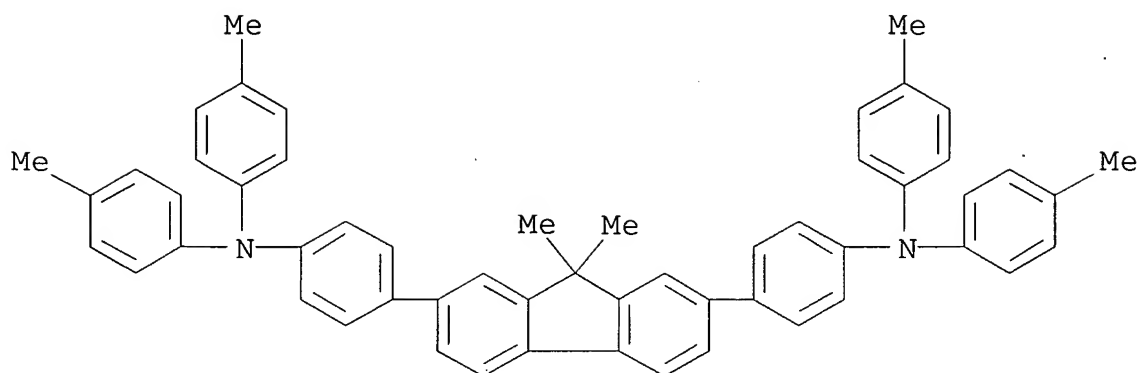
RN 228871-85-0 CAPLUS

CN [2,2'-Bi-9H-fluorene]-7,7'-diamine, 9,9,9',9'-tetramethyl-  
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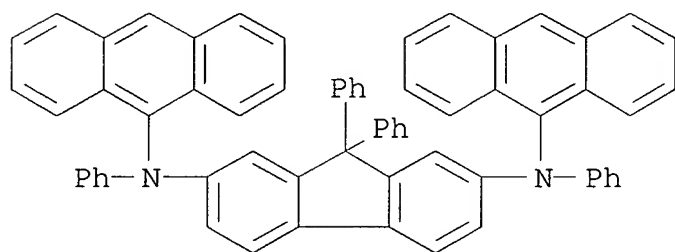
RN 239475-91-3 CAPLUS

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methylphenyl)- (9CI) (CA INDEX NAME)



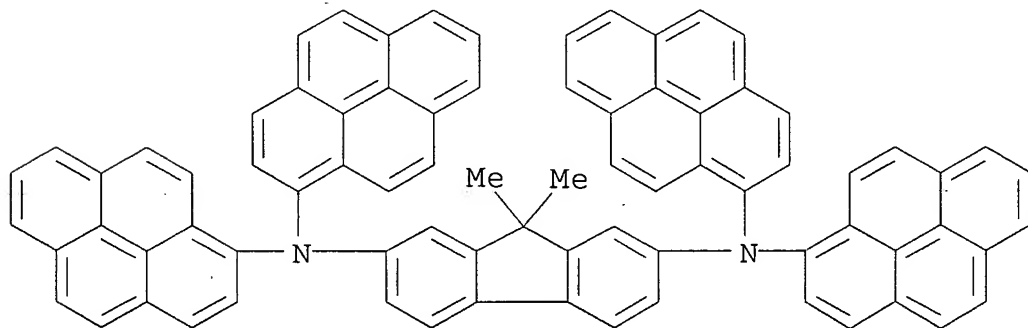
RN 522653-17-4 CAPLUS

CN 9H-Fluorene-2,7-diamine, N,N'-di-9-anthracenyl-N,N',9,9-tetraphenyl- (9CI) (CA INDEX NAME)



RN 669016-10-8 CAPLUS

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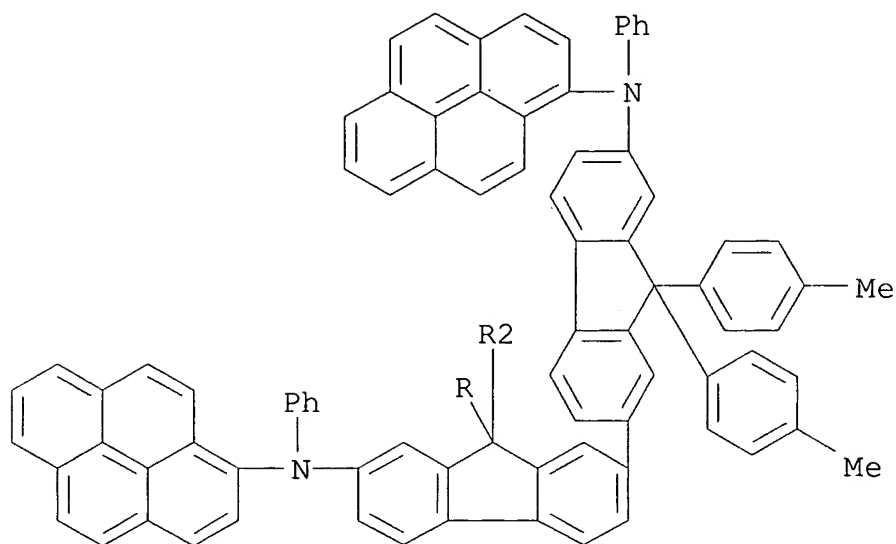


RN 669016-14-2 CAPLUS

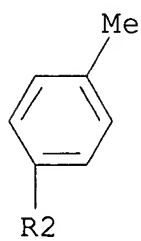
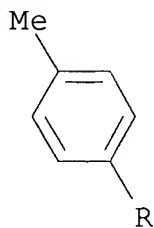
CN [2,2'-Bi-9H-fluorene]-7,7'-diamine, 9,9,9',9'-tetrakis(4-

methylphenyl)-N,N'-diphenyl-N,N'-di-1-pyrenyl- (9CI) (CA INDEX  
NAME)

PAGE 1-A



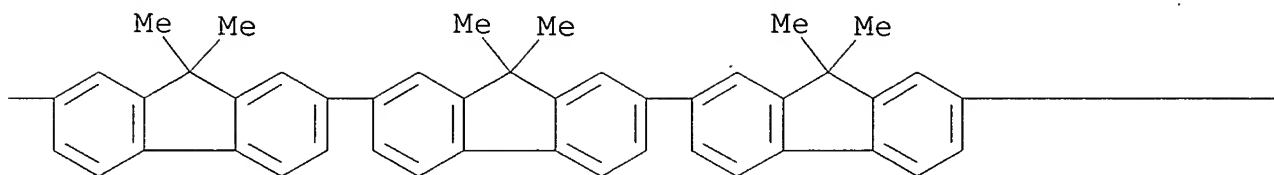
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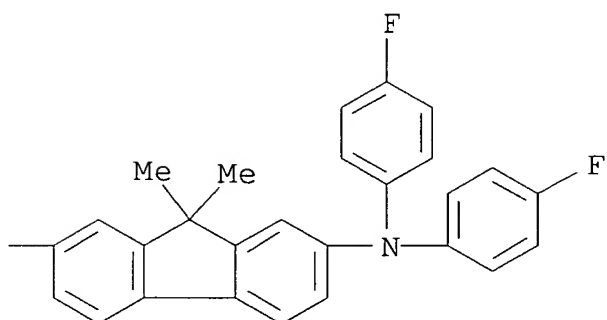
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The chemical structure shows a linear polymer chain consisting of three fluorene units connected by vinyl groups. Each fluorene unit is substituted with two methyl groups (Me) at the 9-position. The polymer chain is represented by horizontal lines at the ends, indicating it is a repeating unit.

PAGE 1-C



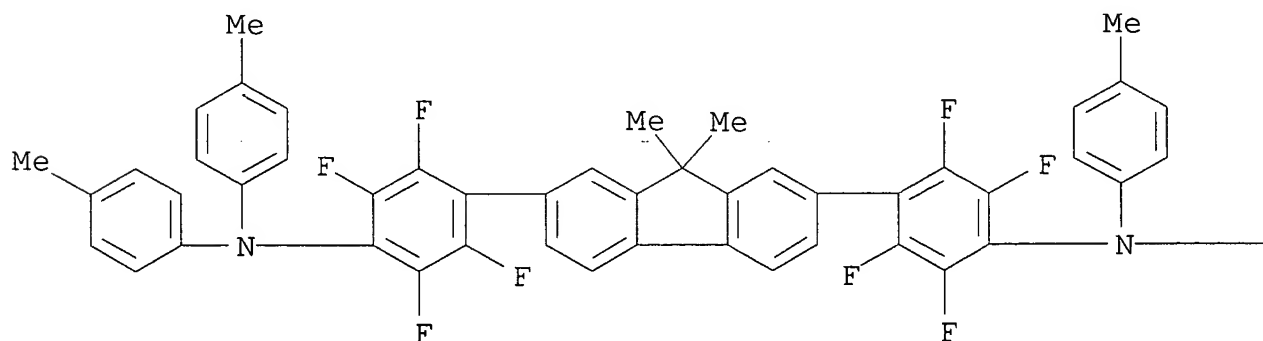
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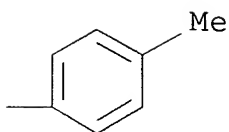
RN 669016-19-7 CAPLUS

CN Benzenamine, 4,4'-(9,9-dimethyl-9H-fluorene-2,7-diyl)bis[2,3,5,6-tetrafluoro-N,N-bis(4-methylphenyl)- (9CI) (CA INDEX NAME)

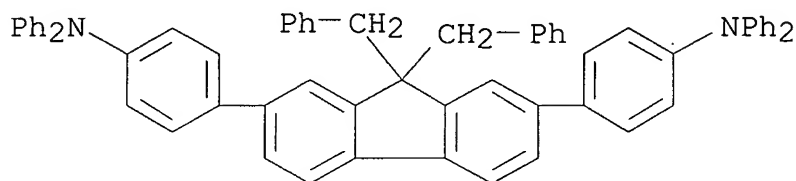
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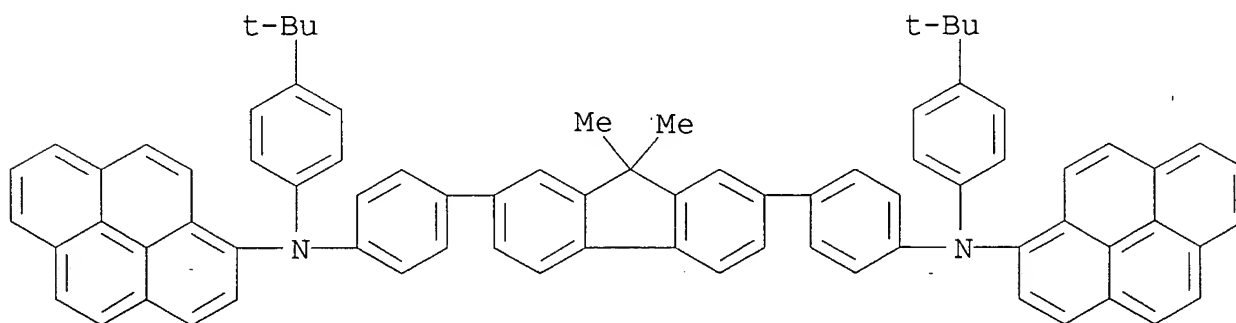
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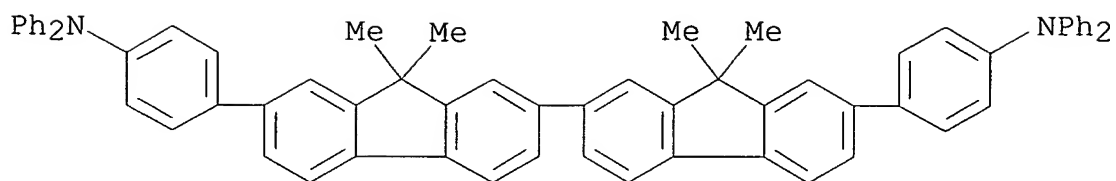
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RN 669016-22-2 CAPLUS  
 CN 1-Pyrenamine, N,N'-[(9,9-dimethyl-9H-fluorene-2,7-diyl)di-4,1-phenylene]bis[N-[4-(1,1-dimethylethyl)phenyl]- (9CI) (CA INDEX NAME)



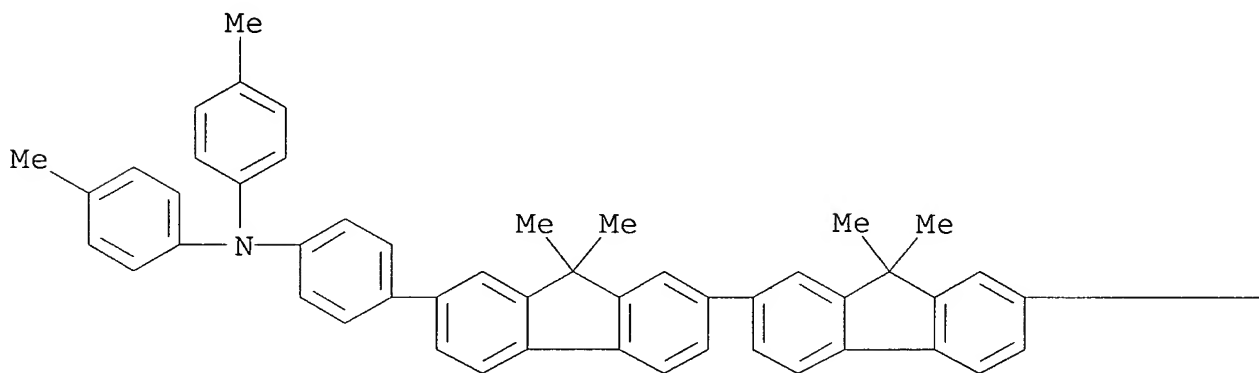
RN 669016-23-3 CAPLUS  
 CN Benzenamine, 4,4'-(9,9,9',9'-tetramethyl[2,2'-bi-9H-fluorene]-7,7'-diyl)bis[N,N-diphenyl- (9CI) (CA INDEX NAME)



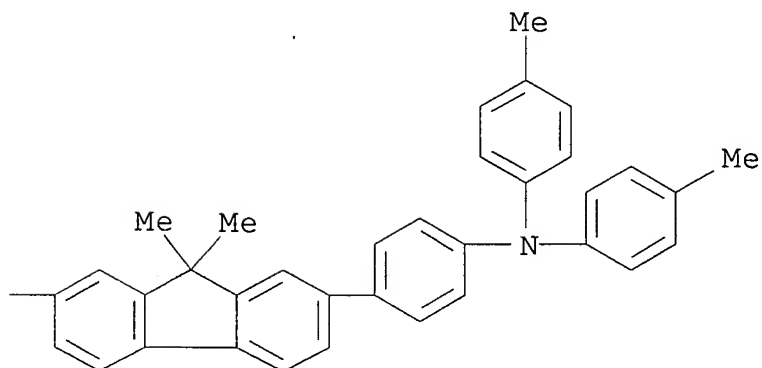
RN 669016-26-6 CAPLUS

CN Benzenamine, 4,4'-(9,9,9',9',9'',9'''-hexamethyl[2,2':7',2''-ter-9H-fluorene]-7,7''-diyl)bis[N,N-bis(4-methylphenyl)- (9CI) (CA INDEX NAME)

PAGE 1-A



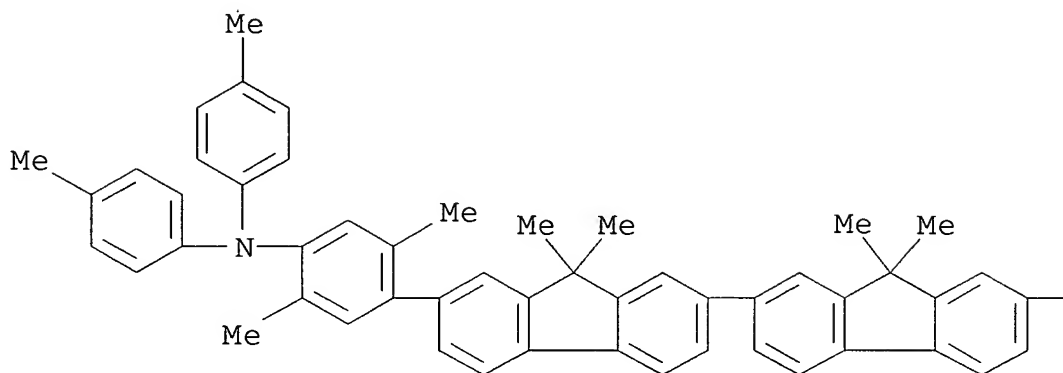
PAGE 1-B



RN 669016-28-8 CAPLUS

CN Benzenamine, 4,4'-(9,9,9',9',9'',9''',9''',9'''-octamethyl[2,2':7',2'':7'',2''':2'''-quater-9H-fluorene]-7,7'''-

PAGE 1-A

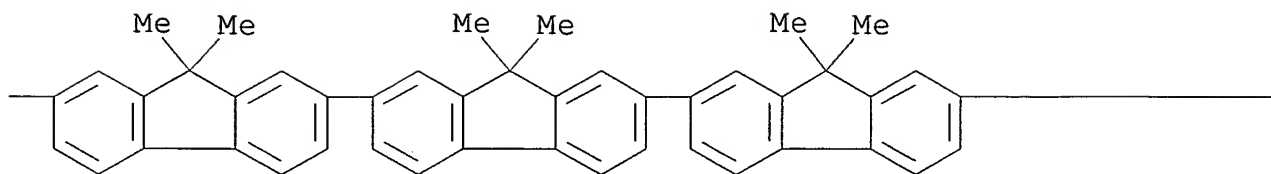
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CN      Benzenamine, 4,4'-(9,9,9',9',9'',9'',9''',9'''',9''',9''''',9''''',9''''',
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        sexi-9H-fluorene]-7,7'''''-diyl)bis[N,N-diphenyl- (9CI)  (CA INDEX
NAME)
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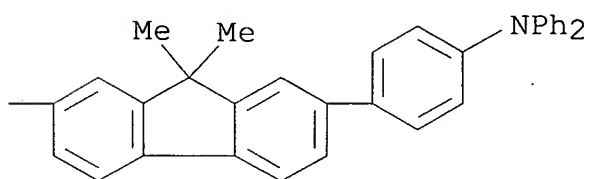




PAGE 1-C

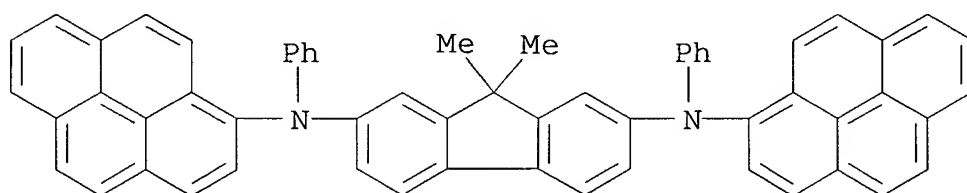


PAGE 1-D



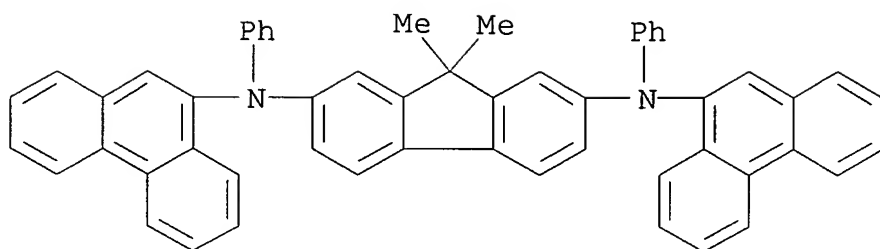
RN 669077-94-5 CAPLUS

CN 9H-Fluorene-2,7-diamine, 9,9-dimethyl-N,N'-diphenyl-N,N'-di-1-pyrenyl- (9CI) (CA INDEX NAME)



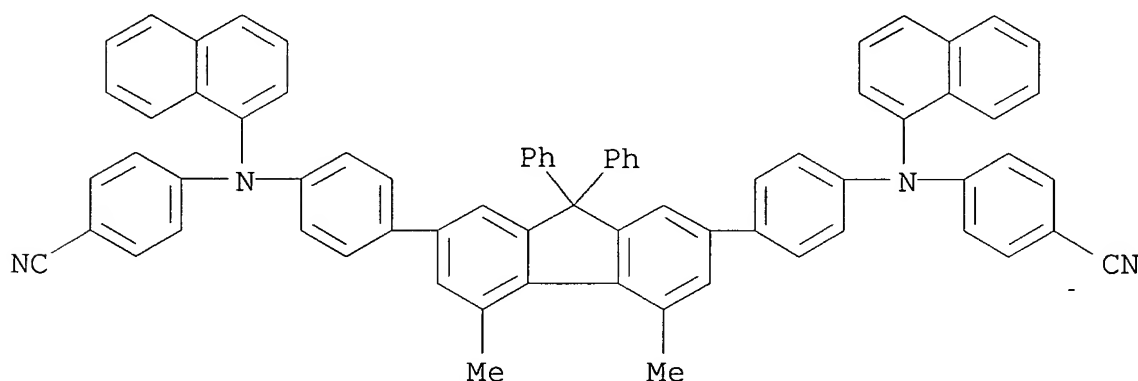
RN 669773-71-1 CAPLUS

CN 9H-Fluorene-2,7-diamine, 9,9-dimethyl-N,N'-di-9-phenanthrenyl-N,N'-diphenyl- (9CI) (CA INDEX NAME)



RN 669773-72-2 CAPLUS

CN Benzonitrile, 4,4'-[(4,5-dimethyl-9,9-diphenyl-9H-fluorene-2,7-diyl)bis[4,1-phenylene(1-naphthalenylimino)]]bis- (9CI) (CA INDEX NAME)



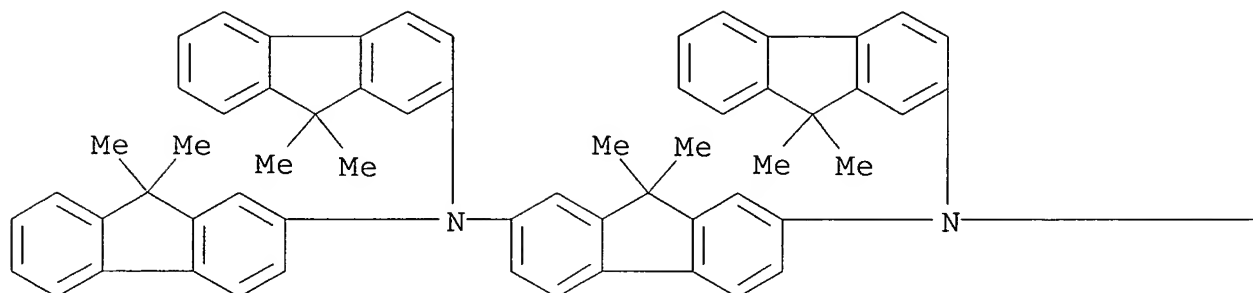
IT 216454-35-2 333432-28-3

(preparation of condensed polycyclic compds. and their use to the manufacture of organic **light-emitting** devices)

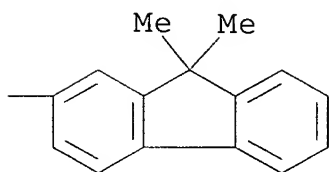
RN 216454-35-2 CAPLUS

CN 9H-Fluorene-2,7-diamine, N,N,N',N'-tetrakis(9,9-dimethyl-9H-fluoren-2-yl)-9,9-dimethyl- (9CI) (CA INDEX NAME)

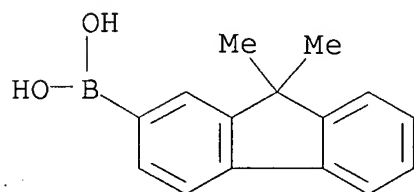
PAGE 1-A



PAGE 1-B



RN 333432-28-3 CAPLUS  
 CN Boronic acid, (9,9-dimethyl-9H-fluoren-2-yl)- (9CI) (CA INDEX NAME)



IC ICM C07C013-567  
 ICS C07C013-66; C07C015-24; C07C015-28; C07C015-30; C07C015-38;  
 C07C025-22; C07C211-58; C07C255-52; C07D401-14; C07D471-04;  
 C09K011-06; H05B033-14; H05B033-22  
 CC 73-11 (Optical, Electron, and Mass Spectroscopy and  
 Other Related Properties)  
 Section cross-reference(s): 25, 76

ST condensed polycyclic compd org **light emitting**  
device

IT Polycyclic compounds  
(condensed polycyclic compound and organic **light-emitting** device using the same)

IT **Luminescent** substances  
(electroluminescent; preparation of condensed polycyclic compds.  
and their use to the manufacture of organic **light-emitting** devices)

IT Electroluminescent devices  
(organic; condensed polycyclic compound and organic **light-emitting** device using the same)

IT 361486-60-4 669773-54-0 669773-55-1  
669773-56-2 669773-57-3 669773-58-4 669773-59-5  
669773-60-8 669773-61-9 669773-62-0  
669773-63-1 669773-64-2 669773-65-3  
669773-66-4 669773-67-5 669773-68-6 669773-69-7  
669773-74-4 669773-77-7 669773-78-8  
(preparation of condensed polycyclic compds. and their use to the  
manufacture of organic **light-emitting** devices)

IT 668994-19-2P 669773-52-8P 669773-53-9P  
(preparation of condensed polycyclic compds. and their use to the  
manufacture of organic **light-emitting** devices)

IT 94928-86-6 143886-09-3 203459-05-6  
228871-85-0 239475-91-3 522653-17-4  
669016-10-8 669016-14-2 669016-15-3  
669016-18-6 669016-19-7 669016-20-0  
669016-22-2 669016-23-3 669016-26-6  
669016-28-8 669016-29-9 669016-30-2  
669077-94-5 669773-71-1 669773-72-2  
(preparation of condensed polycyclic compds. and their use to the  
manufacture of organic **light-emitting** devices)

IT 87-82-1, Hexabromobenzene 87-83-2, 2,3,4,5,6-Pentabromotoluene  
216454-35-2 333432-28-3  
(preparation of condensed polycyclic compds. and their use to the  
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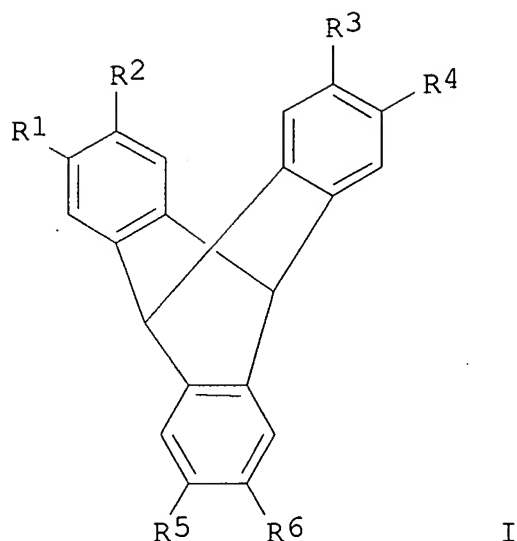
REFERENCE COUNT: 5 THERE ARE 5 CITED REFERENCES AVAILABLE  
FOR THIS RECORD. ALL CITATIONS AVAILABLE  
IN THE RE FORMAT

L40 ANSWER 23 OF 65 CAPLUS COPYRIGHT 2005 ACS on STN  
ACCESSION NUMBER: 2004:203409 CAPLUS  
DOCUMENT NUMBER: 140:261169  
TITLE: Organic **light-emitting**  
device using iptycene derivatives  
INVENTOR(S): Chen, Jian Ping; Okamura, Yoshimasa  
PATENT ASSIGNEE(S): USA

SOURCE: U.S. Pat. Appl. Publ., 43 pp.  
CODEN: USXXCO  
DOCUMENT TYPE: Patent  
LANGUAGE: English  
FAMILY ACC. NUM. COUNT: 1  
PATENT INFORMATION:

PATENT NO. -----	KIND ----	DATE -----	APPLICATION NO. -----	DATE
US 2004048099	A1	20040311	US 2002-230273	2002 0829
CN 1479561	A	20040303	CN 2003-146250	2003 0704
EP 1413617	A1	20040428	EP 2003-255112	2003 0818
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR, BG, CZ, EE, HU, SK				
JP 2004095554	A2	20040325	JP 2003-303405	2003 0827
US 2004253479	A1	20041216	US 2004-883802	2004 0706
PRIORITY APPLN. INFO.:			US 2002-230273	A 2002 0829

OTHER SOURCE(S): MARPAT 140:261169  
GI



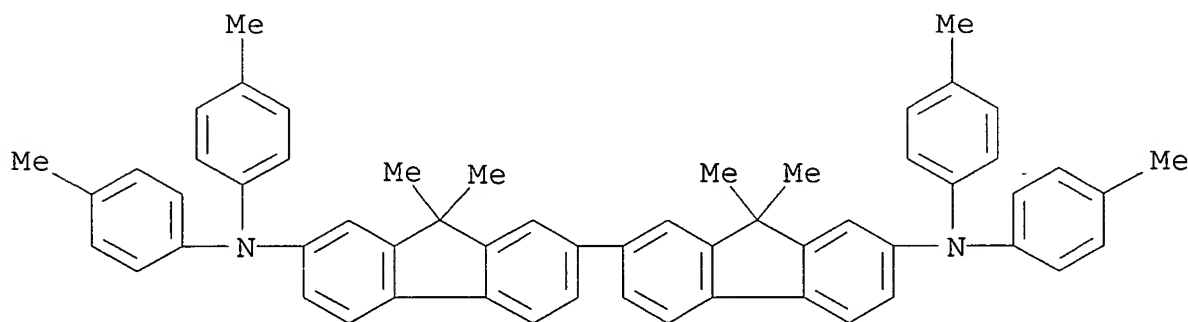
AB Organic **light-emitting** devices are described in which the emissive **layer** and/or  $\geq 1$  charge transport **layer** includes an iptycene derivative described by the general formula I (any or all of R1-6 may be absent; any or all of R1 and R2, R3 and R4, and R5 and R6 may be taken together to form an aryl group; and any or all of R1-6 may represent a charge-transport substituent).

IT 228871-85-0P

(organic **light-emitting** devices using iptycene derivs.)

RN 228871-85-0 CAPLUS

CN [2,2'-Bi-9H-fluorene]-7,7'-diamine, 9,9,9',9'-tetramethyl-N,N,N',N'-tetrakis(4-methylphenyl)- (9CI) (CA INDEX NAME)

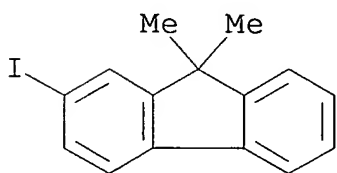


IT 144981-85-1

(organic light-emitting devices using iptycene  
derivs.)

RN 144981-85-1 CAPLUS

CN 9H-Fluorene, 2-iodo-9,9-dimethyl- (9CI) (CA INDEX NAME)

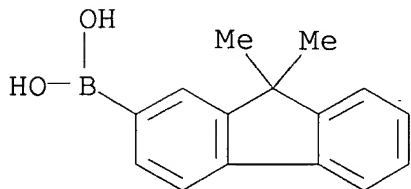


IT 333432-28-3P 400607-26-3P 505078-42-2P

(organic light-emitting devices using iptycene  
derivs.)

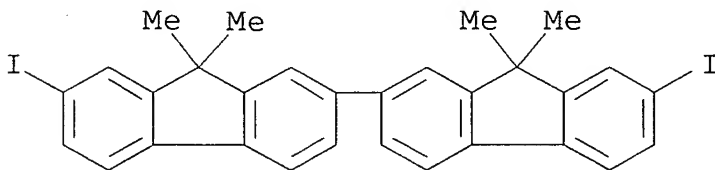
RN 333432-28-3 CAPLUS

CN Boronic acid, (9,9-dimethyl-9H-fluorene-2-yl)- (9CI) (CA INDEX NAME)



RN 400607-26-3 CAPLUS

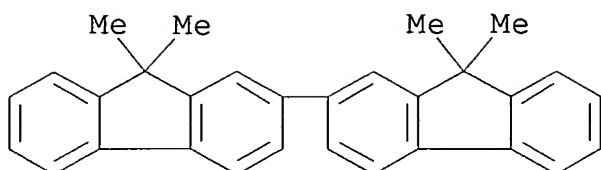
CN 2,2'-Bi-9H-fluorene, 7,7'-diiodo-9,9,9',9'-tetramethyl- (9CI) (CA INDEX NAME)



RN 505078-42-2 CAPLUS

CN 2,2'-Bi-9H-fluorene, 9,9,9',9'-tetramethyl- (9CI) (CA INDEX NAME)





IC ICM H05B033-12  
 NCL 428690000; 428917000; 313504000; 313506000  
 CC 73-11 (**Optical**, Electron, and Mass Spectroscopy and  
 Other Related Properties)  
 ST org **light emitting** device iptycene deriv  
 IT **Luminescent** substances  
 (electroluminescent; organic **light-emitting**  
 devices using iptycene derivs.)  
 IT Electroluminescent devices  
 (organic; organic **light-emitting** devices using  
 iptycene derivs.)  
 IT 477-75-8, Triptycene 25911-58-4 52776-07-5 69096-79-3  
 87207-48-5 87207-52-1 106750-33-8 106750-38-3 127003-66-1  
 127003-70-7 339317-68-9 669072-37-1 669072-40-6  
 669072-55-3 669072-58-6 669072-61-1 669072-64-4  
 669072-67-7 669072-70-2 669072-73-5 669072-76-8  
 669072-81-5  
 (organic **light-emitting** devices using iptycene  
 derivs.)  
 IT **228871-85-0P** 669072-89-3P  
 (organic **light-emitting** devices using iptycene  
 derivs.)  
 IT 128-08-5, N-Bromosuccinimide 620-93-9 5122-94-1,  
 4-Biphenylboronic acid 32834-84-7, 2,2'-Dimethyl-1,1'-binaphthyl  
 52776-05-3 **144981-85-1** 669072-84-8 669072-87-1  
 (organic **light-emitting** devices using iptycene  
 derivs.)  
 IT 54130-90-4P, 2,2'-Dibromomethyl-1,1'-binaphthyl  
**333432-28-3P 400607-26-3P 505078-42-2P**  
 (organic **light-emitting** devices using iptycene  
 derivs.)

L40 ANSWER 24 OF 65 CAPLUS COPYRIGHT 2005 ACS on STN  
 ACCESSION NUMBER: 2004:198497 CAPLUS  
 DOCUMENT NUMBER: 140:225545  
 TITLE: Phenylanthracenes for blue-emitting organic  
 electroluminescent devices having high  
**luminescent** intensity and efficiency  
 INVENTOR(S): Kawamura, Hisayuki  
 PATENT ASSIGNEE(S): Idemitsu Kosan Co., Ltd., Japan

SOURCE: Jpn. Kokai Tokkyo Koho, 24 pp.  
CODEN: JKXXAF  
DOCUMENT TYPE: Patent  
LANGUAGE: Japanese  
FAMILY ACC. NUM. COUNT: 1  
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 2004075580	A2	20040311	JP 2002-235538	2002 0813

PRIORITY APPLN. INFO.: JP 2002-235538  
2002  
0813

OTHER SOURCE(S): MARPAT 140:225545

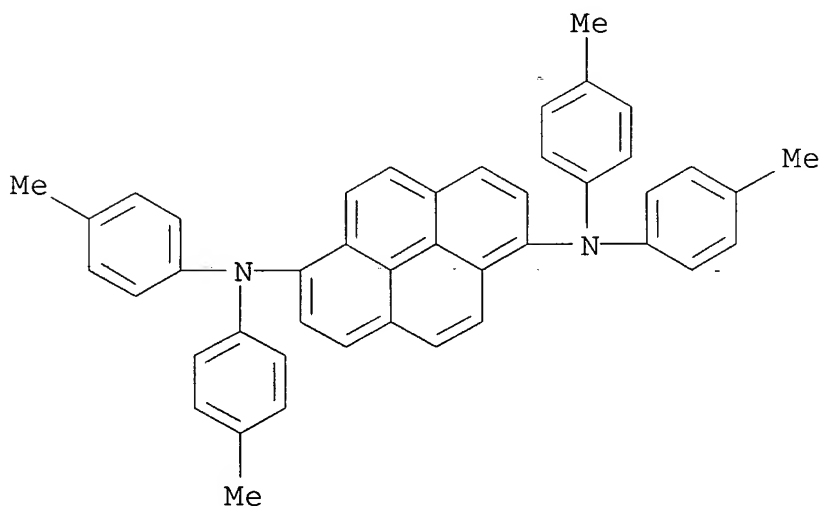
AB The phenylanthracenes are A1LA2 (I) (A1, A2 = phenylanthryl, diphenylanthryl; L = C $\geq$ 8 polycyclic alicyclic group; A1 and A2 link via different atoms of L). Organic electroluminescent devices have emitter or hole-transporting **layers** containing I.

IT 663954-33-4

(dopants; polycyclic alicyclic compds. bearing phenylanthracene groups as emitters or hole transporting materials for blue-emitting organic electroluminescent devices)

RN 663954-33-4 CAPLUS

CN 1,6-Pyrenediamine, N,N,N',N'-tetrakis(4-methylphenyl)- (9CI) (CA INDEX NAME)

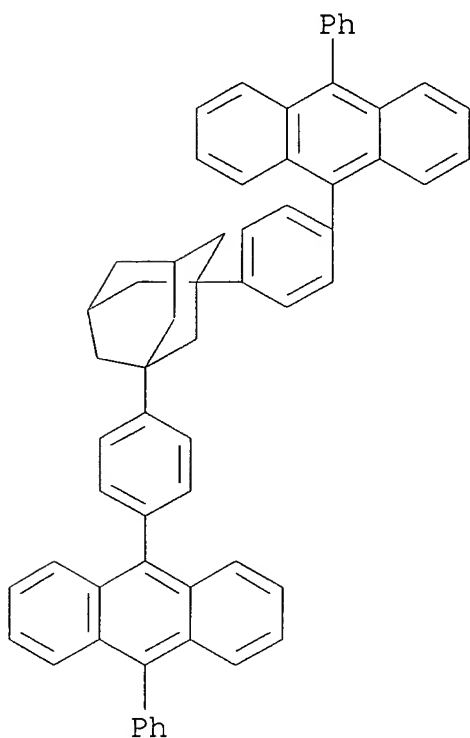


IT 665054-19-3P 665054-20-6P

(manufacture of polycyclic alicyclic compds. bearing phenylanthracene groups as emitters or hole transporting materials for blue-emitting organic electroluminescent devices)

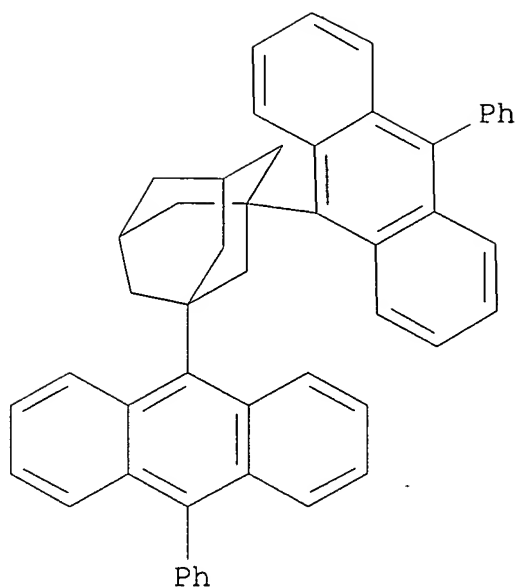
RN 665054-19-3 CAPLUS

CN Tricyclo[3.3.1.1<sup>3,7</sup>]decane, 1,3-bis[4-(10-phenyl-9-anthracenyl)phenyl]- (9CI) (CA INDEX NAME)

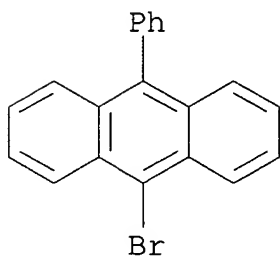


RN 665054-20-6 CAPLUS

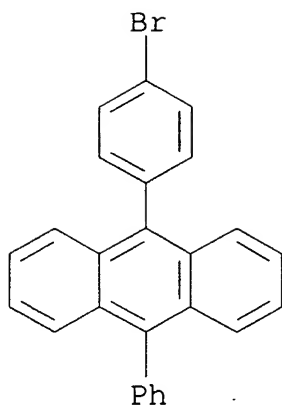
CN Tricyclo[3.3.1.1<sup>3,7</sup>]decane, 1,3-bis(10-phenyl-9-anthracenyl)- (9CI) (CA INDEX NAME)



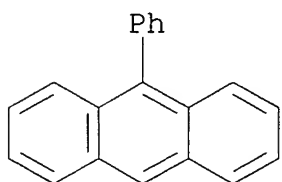
IT 23674-20-6P 625854-02-6P  
(manufacture of polycyclic alicyclic compds. bearing  
phenylanthracene groups as emitters or hole transporting  
materials for blue-emitting organic electroluminescent devices)  
RN 23674-20-6 CAPLUS  
CN Anthracene, 9-bromo-10-phenyl- (6CI, 7CI, 8CI, 9CI) (CA INDEX  
NAME)



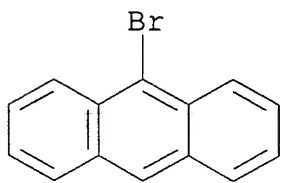
RN 625854-02-6 CAPLUS  
CN Anthracene, 9-(4-bromophenyl)-10-phenyl- (9CI) (CA INDEX NAME)



IT 602-55-1, 9-Phenylanthracene 1564-64-3,  
9-Bromoanthracene  
(manufacture of polycyclic alicyclic compds. bearing  
phenylanthracene groups as emitters or hole transporting  
materials for blue-emitting organic electroluminescent devices)  
RN 602-55-1 CAPLUS  
CN Anthracene, 9-phenyl- (6CI, 8CI, 9CI) (CA INDEX NAME)



RN 1564-64-3 CAPLUS  
CN Anthracene, 9-bromo- (6CI, 7CI, 8CI, 9CI) (CA INDEX NAME)



IC ICM C07C013-615  
ICS C09K011-06; H05B033-14; H05B033-22  
CC 73-11 (Optical, Electron, and Mass Spectroscopy and  
Other Related Properties)

Section cross-reference(s): 25

- IT **Luminescent** substances  
(electroluminescent; polycyclic alicyclic compds. bearing phenylanthracene groups as emitters or hole transporting materials for blue-emitting organic electroluminescent devices)
- IT 154853-83-5 **663954-33-4**  
(dopants; polycyclic alicyclic compds. bearing phenylanthracene groups as emitters or hole transporting materials for blue-emitting organic electroluminescent devices)
- IT **665054-19-3P 665054-20-6P**  
(manufacture of polycyclic alicyclic compds. bearing phenylanthracene groups as emitters or hole transporting materials for blue-emitting organic electroluminescent devices)
- IT **23674-20-6P 625854-02-6P**  
(manufacture of polycyclic alicyclic compds. bearing phenylanthracene groups as emitters or hole transporting materials for blue-emitting organic electroluminescent devices)
- IT 98-80-6, Benzeneboronic acid **602-55-1**,  
9-Phenylanthracene 876-53-9, 1,3-Dibromoadamantane  
**1564-64-3**, 9-Bromoanthracene 5467-74-3,  
4-Bromophenylboronic acid  
(manufacture of polycyclic alicyclic compds. bearing phenylanthracene groups as emitters or hole transporting materials for blue-emitting organic electroluminescent devices)

L40 ANSWER 25 OF 65 CAPLUS COPYRIGHT 2005 ACS on STN  
ACCESSION NUMBER: 2004:182957 CAPLUS  
DOCUMENT NUMBER: 140:243296  
TITLE: Organic electroluminescent devices and organic  
luminescent medium  
INVENTOR(S): Matsuura, Masahide; Funahashi, Masakazu;  
Fukuoka, Kenichi; Hosokawa, Chishio  
PATENT ASSIGNEE(S): Idemitsu Kosan Co., Ltd., Japan  
SOURCE: PCT Int. Appl., 77 pp.  
CODEN: PIXXD2  
DOCUMENT TYPE: Patent  
LANGUAGE: Japanese  
FAMILY ACC. NUM. COUNT: 1  
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
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WO 2004018588	A1	20040304	WO 2003-JP8463	2003 0703

W: CN, JP, KR

RW: AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR,

HU, IE, IT, LU, MC, NL, PT, RO, SE, SI, SK, TR  
PRIORITY APPLN. INFO.: JP 2002-211308

A

2002

0719

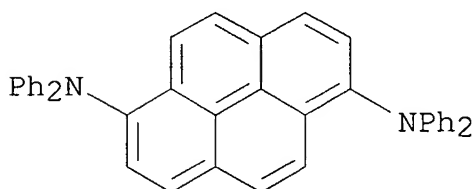
OTHER SOURCE(S): MARPAT 140:243296

AB An organic electroluminescent device comprises a pair of electrodes and an organic **luminescent** medium **layer** which is placed between the electrodes and contains (A) a specific arylamine and (B) at least one compound selected from among specific anthracene derivs., spiro fluorene derivs., fused-ring compds., and metal complexes; and an organic **luminescent** medium containing the components (A) and (B). The organic electroluminescent device exhibits high color purity, excellent heat resistance and a long lifetime and emits blue to yellow light at high efficiency, and the organic **luminescent** medium is suitable for use in such devices.

IT 76656-53-6 122648-99-1 131625-67-7  
171408-93-8 172285-79-9 172285-83-5  
220721-68-6 279672-22-9 349666-25-7  
400606-81-7 475461-15-5 668019-24-7  
668019-76-9 668019-96-3 668020-07-3  
668020-20-0 668020-26-6 668020-28-8  
668020-34-6 668020-39-1 668020-46-0  
668020-53-9 668020-61-9 668020-67-5  
668020-74-4 668020-81-3 668020-88-0  
(organic electroluminescent devices and organic **luminescent** medium)

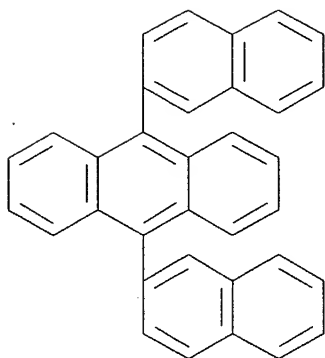
RN 76656-53-6 CAPLUS

CN 1,6-Pyrenediamine, N,N,N',N'-tetraphenyl- (9CI) (CA INDEX NAME)



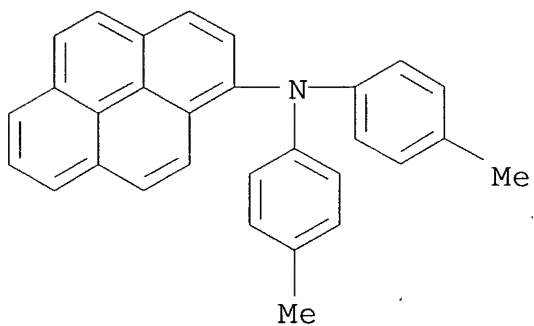
RN 122648-99-1 CAPLUS

CN Anthracene, 9,10-di-2-naphthalenyl- (9CI) (CA INDEX NAME)



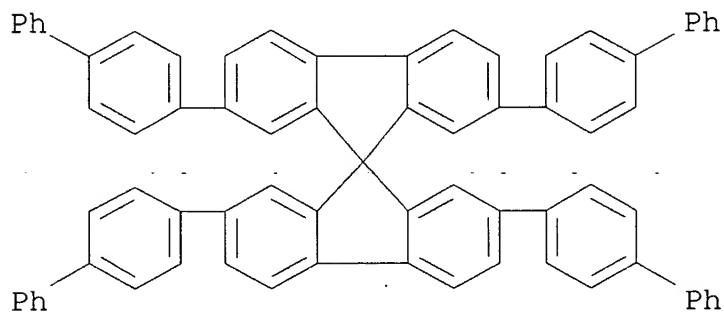
RN 131625-67-7 CAPLUS

CN 1-Pyrenamine, N,N-bis(4-methylphenyl)- (9CI) (CA INDEX NAME)



RN 171408-93-8 CAPLUS

CN 9,9'-Spirobi[9H-fluorene], 2,2',7,7'-tetrakis([1,1'-biphenyl]-4-yl)- (9CI) (CA INDEX NAME)

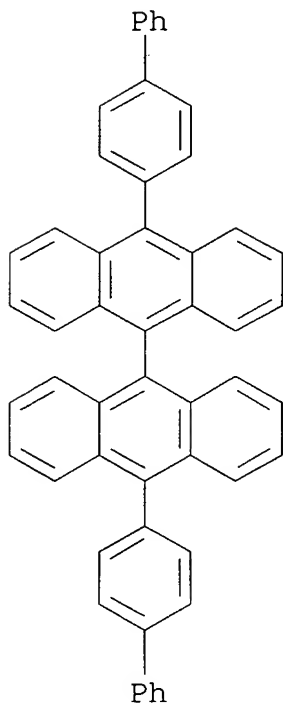


RN 172285-79-9 CAPLUS

CN 9,9'-Bianthracene, 10,10'-bis([1,1'-biphenyl]-4-yl)- (9CI) (CA

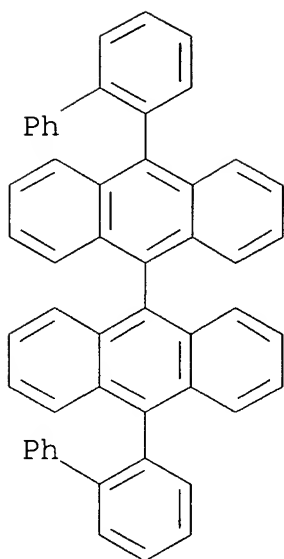


INDEX NAME)



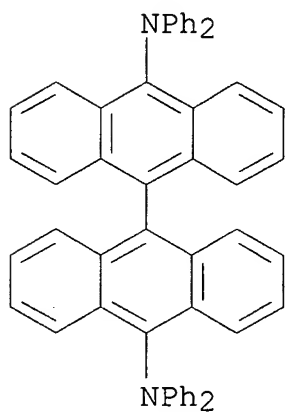
RN 172285-83-5 CAPLUS

CN 9,9'-Bianthracene, 10,10'-bis([1,1'-biphenyl]-2-yl)- (9CI) (CA  
INDEX NAME)



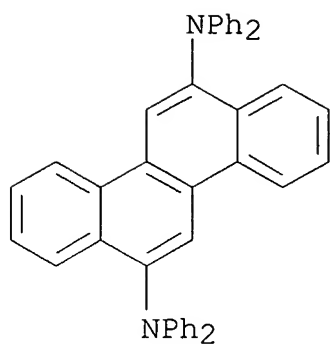
RN 220721-68-6 CAPLUS

CN [9,9'-Bianthracene]-10,10'-diamine, N,N,N',N'-tetraphenyl- (9CI)  
(CA INDEX NAME)



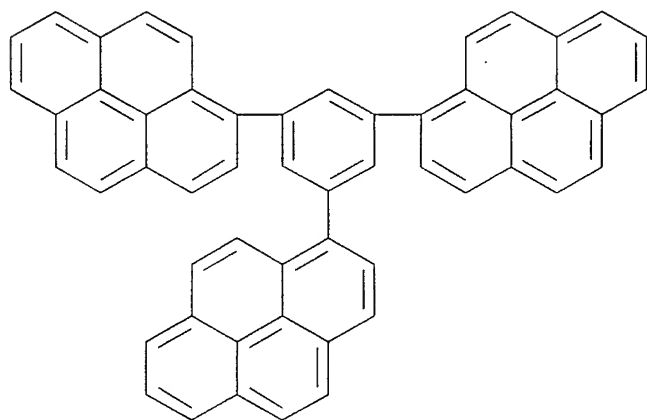
RN 279672-22-9 CAPLUS

CN 6,12-Chrysenediamine, N,N,N',N'-tetraphenyl- (9CI) (CA INDEX  
NAME)



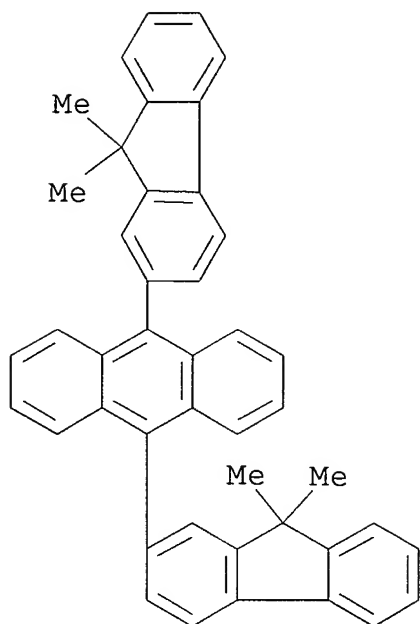
RN 349666-25-7 CAPLUS

CN Pyrene, 1,1',1''-(1,3,5-benzenetriyl)tris- (9CI) (CA INDEX NAME)



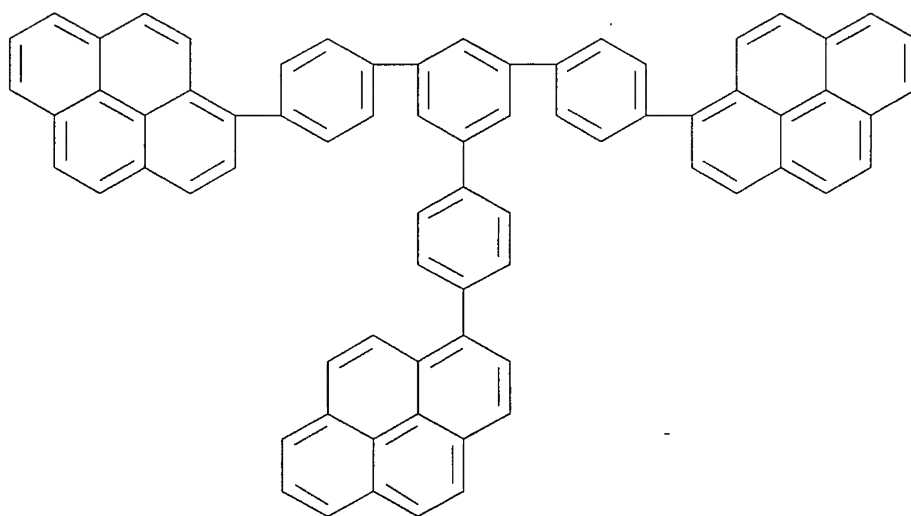
RN 400606-81-7 CAPLUS

CN Anthracene, 9,10-bis(9,9-dimethyl-9H-fluoren-2-yl)- (9CI) (CA INDEX NAME)



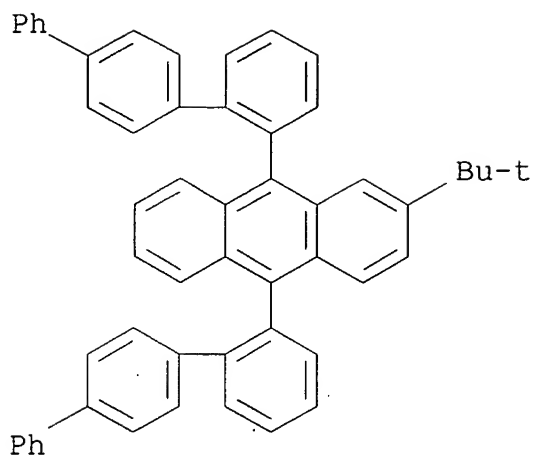
RN 475461-15-5 CAPLUS

CN Pyrene, 1,1'-[5'-[4-(1-pyrenyl)phenyl]][1,1':3',1''-terphenyl]-  
4,4''-diyl]bis- (9CI) (CA INDEX NAME)



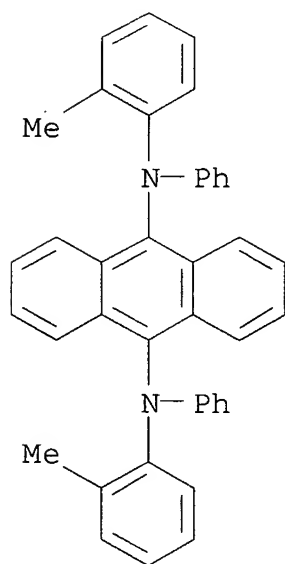
RN 668019-24-7 CAPLUS

CN Anthracene, 2-(1,1-dimethylethyl)-9,10-bis([1,1':4',1''-terphenyl]-  
2-yl)- (9CI) (CA INDEX NAME)



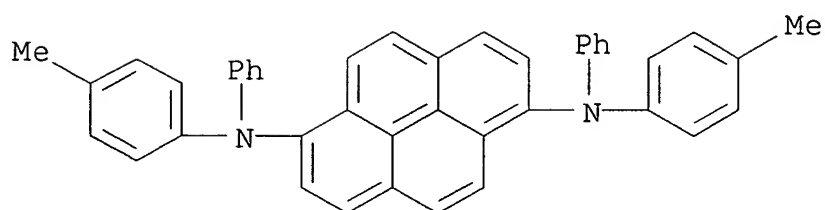
RN 668019-76-9 CAPLUS

CN 9,10-Anthracenediamine, N,N'-bis(2-methylphenyl)-N,N'-diphenyl-  
(9CI) (CA INDEX NAME)



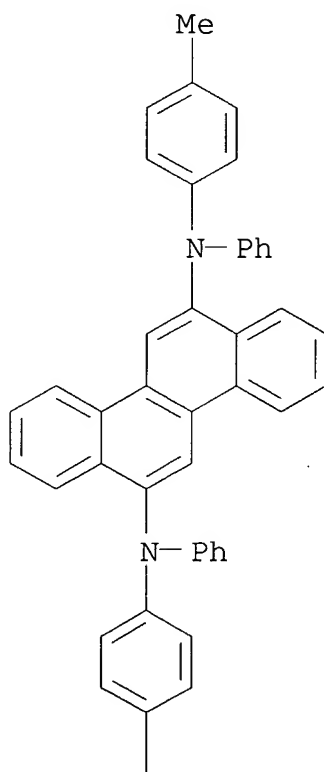
RN 668019-96-3 CAPLUS

CN 1,6-Pyrenediamine, N,N'-bis(4-methylphenyl)-N,N'-diphenyl- (9CI)  
(CA INDEX NAME)



RN 668020-07-3 CAPLUS  
 CN 6,12-Chrysenediamine, N,N'-bis(4-methylphenyl)-N,N'-diphenyl-  
 (9CI) (CA INDEX NAME)

PAGE 1-A

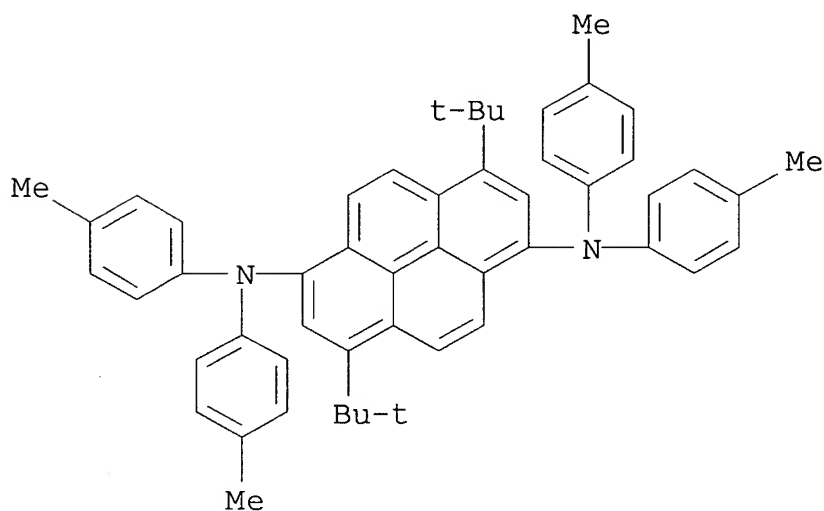


PAGE 2-A

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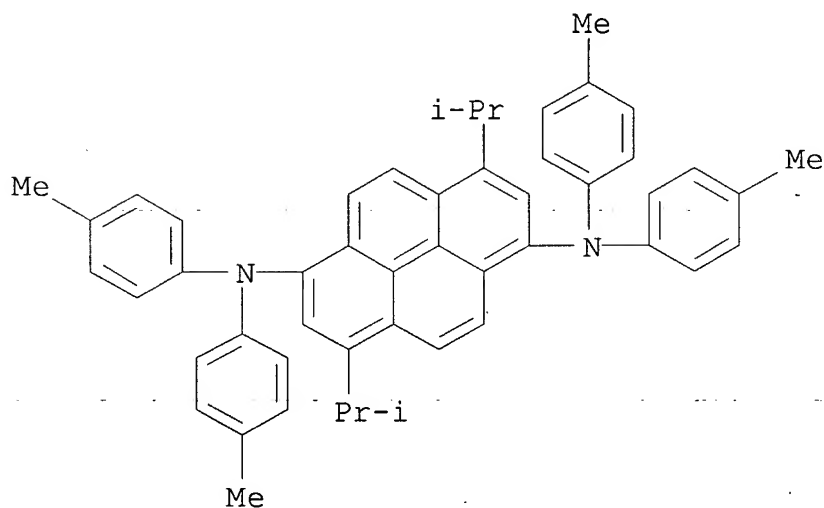
RN 668020-20-0 CAPLUS

CN 1,6-Pyrenediamine, 3,8-bis(1,1-dimethylethyl)-N,N,N',N'-tetrakis(4-methylphenyl)- (9CI) (CA INDEX NAME)



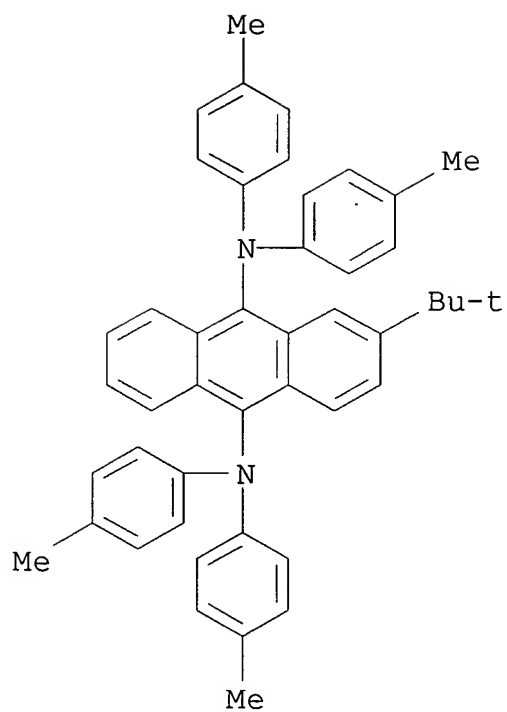
RN 668020-26-6 CAPLUS

CN 1,6-Pyrenediamine, 3,8-bis(1-methylethyl)-N,N,N',N'-tetrakis(4-methylphenyl)- (9CI) (CA INDEX NAME)



RN 668020-28-8 CAPLUS

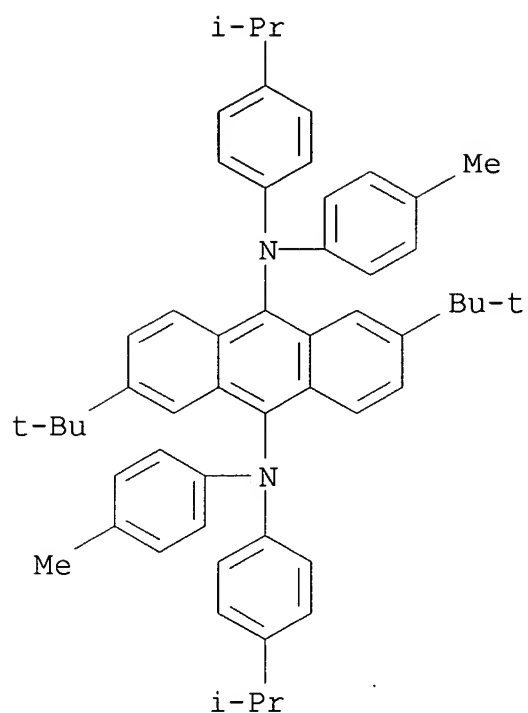
CN 9,10-Anthracenediamine, 2-(1,1-dimethylethyl)-N,N,N',N'-tetrakis(4-methylphenyl)- (9CI) (CA INDEX NAME)



RN 668020-34-6 CAPLUS

CN 9,10-Anthracenediamine, 2,6-bis(1,1-dimethylethyl)-N,N'-bis[4-(1-methylethyl)phenyl]-N,N'-bis(4-methylphenyl)- (9CI) (CA INDEX NAME)

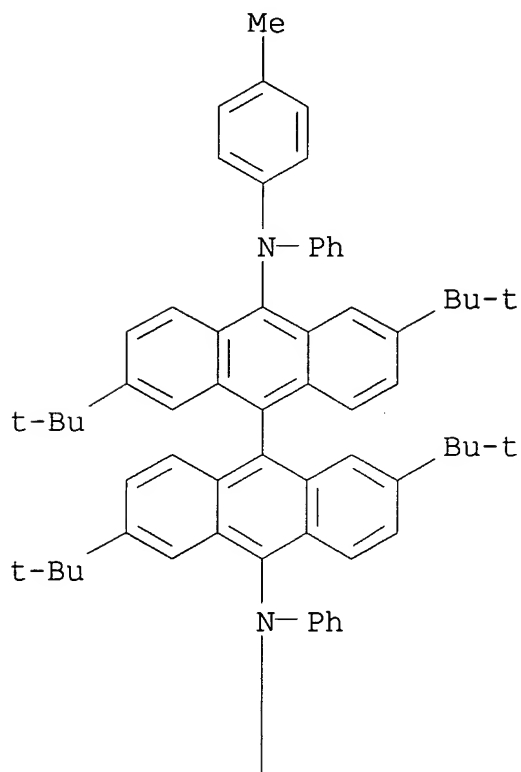




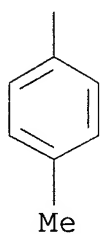
RN 668020-39-1 CAPLUS

CN [9,9'-Bianthracene]-10,10'-diamine, 2,2',6,6'-tetrakis(1,1-dimethylethyl)-N,N'-bis(4-methylphenyl)-N,N'-diphenyl- (9CI) (CA INDEX NAME)

PAGE 1-A

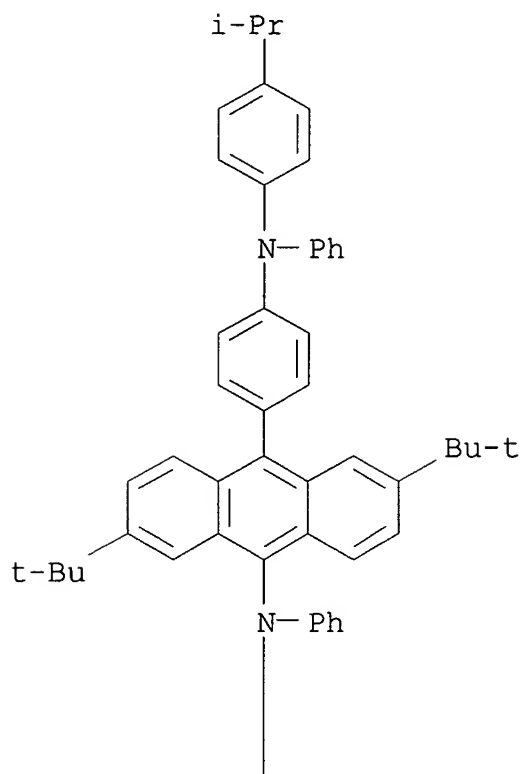


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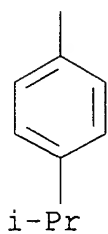


RN 668020-46-0 CAPLUS  
 CN 9-Anthracenamine, 2,6-bis(1,1-dimethylethyl)-N-[4-(1-methylethyl)phenyl]-10-[4-[[4-(1-methylethyl)phenyl]phenylamino]phenyl]-N-phenyl- (9CI) (CA INDEX NAME)

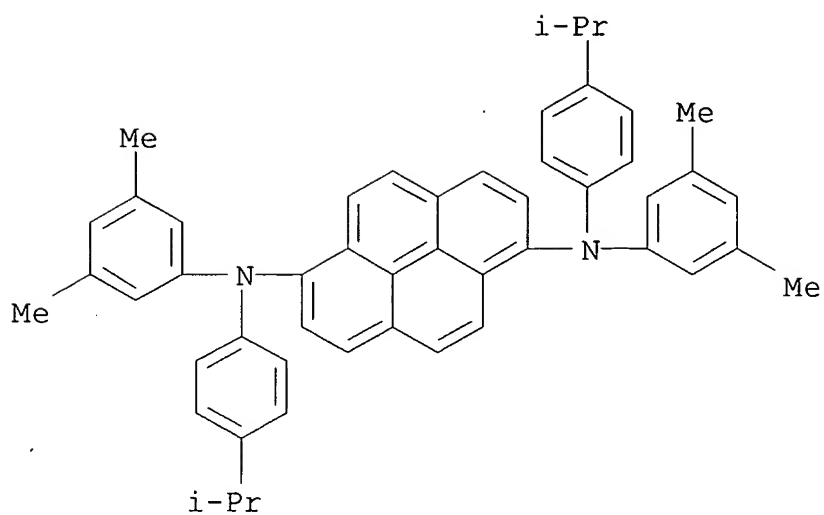
PAGE 1-A



PAGE 2-A

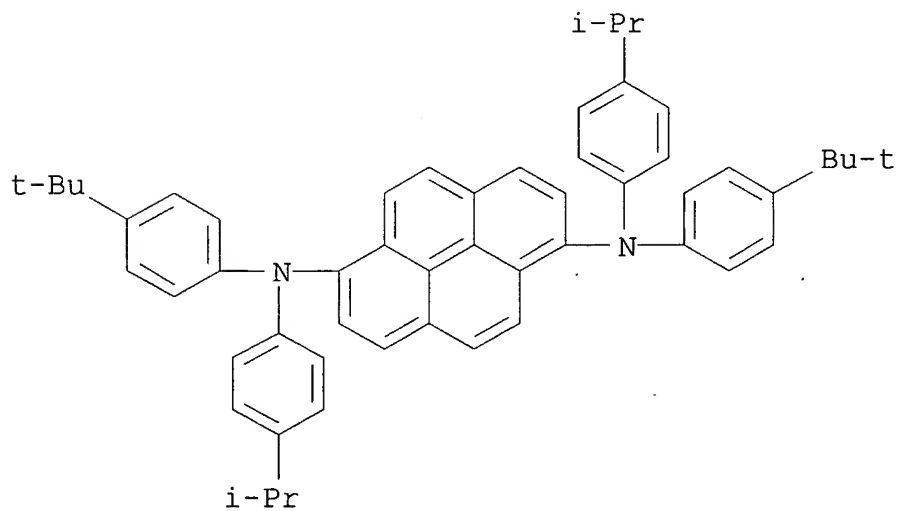


RN 668020-53-9 CAPLUS  
CN 1,6-Pyrenediamine, N,N'-bis(3,5-dimethylphenyl)-N,N'-bis[4-(1-methylethyl)phenyl]- (9CI) (CA INDEX NAME)



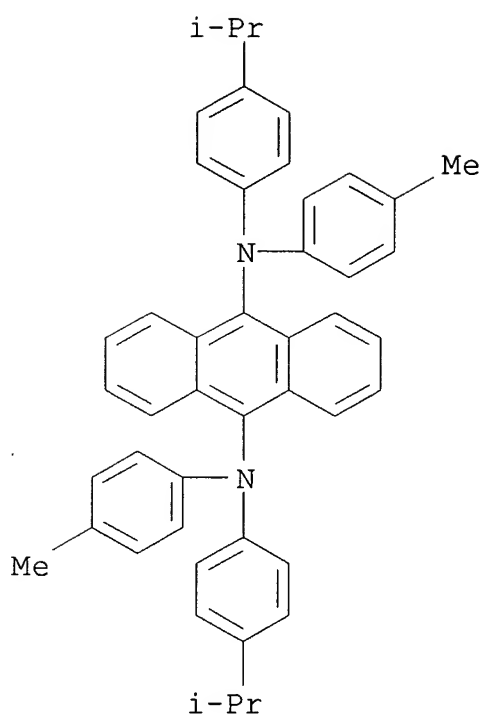
RN 668020-61-9 CAPLUS

CN 1,6-Pyrenediamine, N,N'-bis[4-(1,1-dimethylethyl)phenyl]-N,N'-bis[4-(1-methylethyl)phenyl]- (9CI) (CA INDEX NAME)



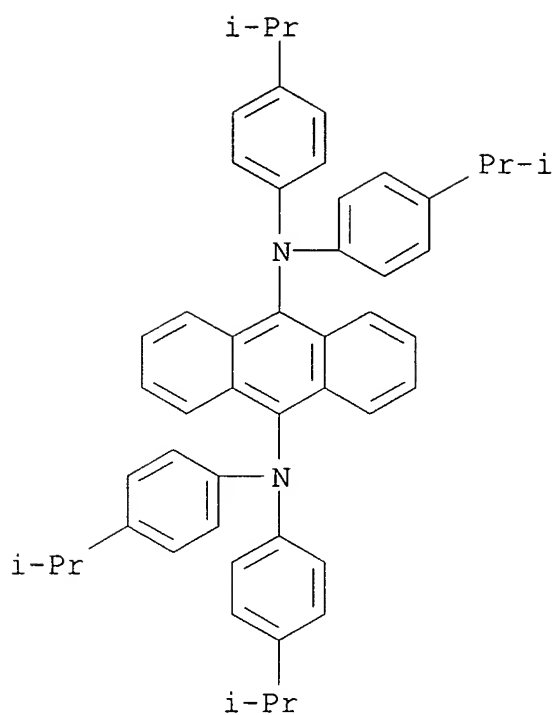
RN 668020-67-5 CAPLUS

CN 9,10-Anthracenediamine, N,N'-bis[4-(1-methylethyl)phenyl]-N,N'-bis(4-methylphenyl)- (9CI) (CA INDEX NAME)

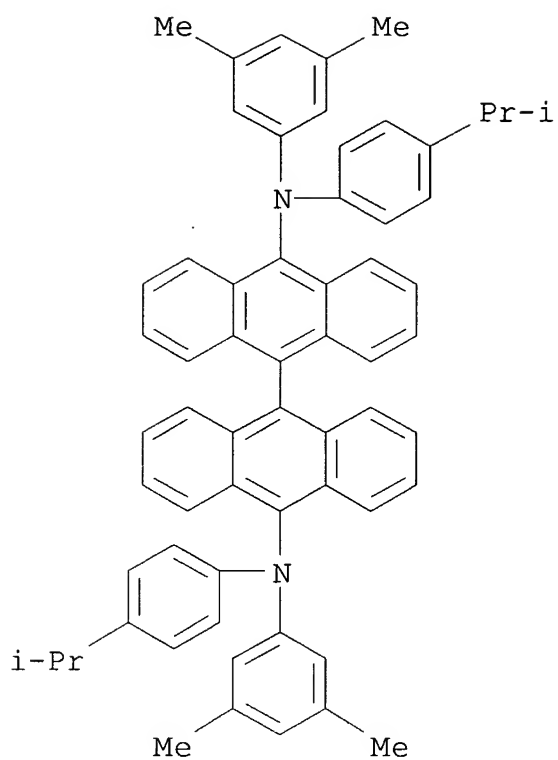


RN 668020-74-4 CAPLUS

CN 9,10-Anthracenediamine, N,N,N',N'-tetrakis[4-(1-methylethyl)phenyl]- (9CI) (CA INDEX NAME)

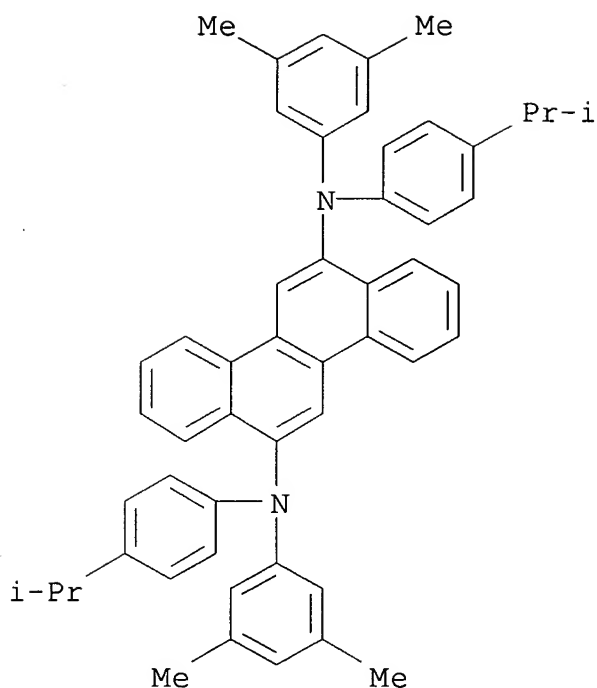


RN 668020-81-3 CAPLUS  
CN [9,9'-Bianthracene]-10,10'-diamine, N,N'-bis(3,5-dimethylphenyl)-  
N,N'-bis[4-(1-methylethyl)phenyl]- (9CI) (CA INDEX NAME)



RN 668020-88-0 CAPLUS

CN 6,12-Chrysenediamine, N,N'-bis(3,5-dimethylphenyl)-N,N'-bis[4-(1-methylethyl)phenyl]- (9CI) (CA INDEX NAME)



IC ICM C09K011-06  
ICS H05B033-14; H05B033-22  
CC 73-5 (**Optical**, Electron, and Mass Spectroscopy and Other  
Related Properties)  
Section cross-reference(s): 25, 74  
ST org electroluminescent **luminescent** medium; anthracene  
spiro fluorene fused ring compd metal complex  
IT Electroluminescent devices  
(organic electroluminescent devices and organic **luminescent**  
medium)  
IT 76656-53-6 122648-99-1 131625-67-7  
171408-93-8 172285-79-9 172285-83-5  
220721-68-6 244281-01-4 279672-22-9  
349666-25-7 400606-81-7 475461-15-5  
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668019-96-3 668020-07-3 668020-14-2  
668020-20-0 668020-26-6 668020-28-8  
668020-34-6 668020-39-1 668020-46-0  
668020-53-9 668020-61-9 668020-67-5  
668020-74-4 668020-81-3 668020-88-0  
(organic electroluminescent devices and organic **luminescent**  
medium)

REFERENCE COUNT:

23

THERE ARE 23 CITED REFERENCES AVAILABLE  
FOR THIS RECORD. ALL CITATIONS AVAILABLE  
IN THE RE FORMAT



L40 ANSWER 26 OF 65 CAPLUS COPYRIGHT 2005 ACS on STN  
 ACCESSION NUMBER: 2004:117761 CAPLUS  
 DOCUMENT NUMBER: 140:171933  
 TITLE: Polycyclic aromatic hydrocarbons as  
 electroluminescent substances for organic  
 electroluminescent devices  
 INVENTOR(S): Ishida, Tsutomu; Shimamura, Takehiko; Tanabe,  
 Yoshimitsu; Totani, Yoshiyuki; Nakatsuka,  
 Masakatsu  
 PATENT ASSIGNEE(S): Mitsui Chemicals Inc., Japan  
 SOURCE: Jpn. Kokai Tokkyo Koho, 81 pp.  
 CODEN: JKXXAF  
 DOCUMENT TYPE: Patent  
 LANGUAGE: Japanese  
 FAMILY ACC. NUM. COUNT: 1  
 PATENT INFORMATION:

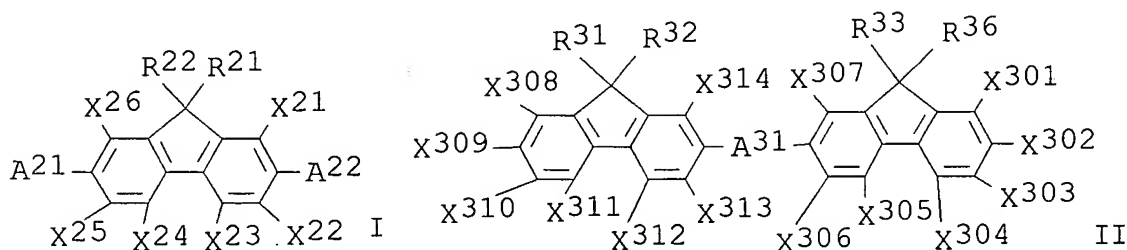
PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 2004043349	A2	20040212	JP 2002-202163	2002 0711

PRIORITY APPLN. INFO.:

JP 2002-202163

2002  
0711

OTHER SOURCE(S): MARPAT 140:171933  
 GI



AB The hydrocarbons, having direct linkages between fluorenes and polycyclic aromatic groups other than anthracenes, are X1F1jA1kF2lA2mF3nX2, I, or II (A1, A2, A21, A22, A31 = divalent polycyclic aromatic group; F1-F3 = fluorenediyl; R21, R22, R31-R34 = H, alkyl, aryl, aralkyl; X1, X2, X21-X26, X301-X314 = H, halo,

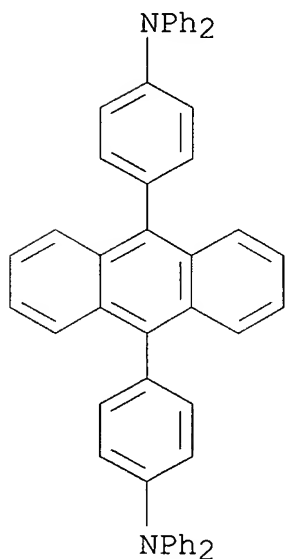
linear or branched alkyl, cycloalkyl, etc.; A1, A2, A31  $\neq$  anthracenediyl; X1, X2, A21, A22  $\neq$  anthryl; X21-X26, X301-X314, R21, R22, R31-R34  $\neq$  fluorenyl, polycyclic aromatic group; j, m, n = 0, 1; k, l = 1, 2). The devices having emitter **layers** containing the hydrocarbons as hosts or dopants show high **luminescence** efficiency and long service life.

IT 194295-98-2

(dopant; hydrocarbons having direct linkages between fluorenes and polycyclic aromatic groups as hosts or dopants for emitter **layers** in organic electroluminescent devices)

RN 194295-98-2 CAPLUS

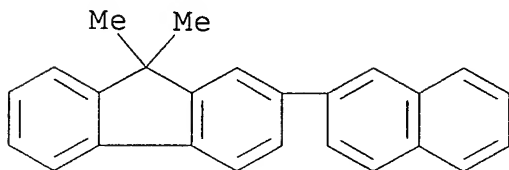
CN Benzenamine, 4,4'-(9,10-anthracenediyl)bis[N,N-diphenyl- (9CI)  
(CA INDEX NAME)



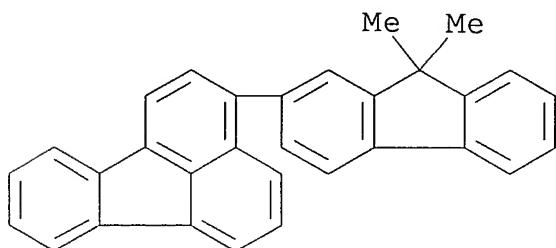
IT 653590-49-9P 653590-65-9P 653590-82-0P  
653599-36-1P 653599-38-3P 653599-45-2P  
653599-55-4P 654664-36-5P 654664-37-6P  
654664-38-7P 654664-39-8P 654664-40-1P  
654664-41-2P 654664-43-4P 654664-44-5P  
654664-45-6P 654664-46-7P 654664-47-8P  
654664-48-9P 654664-49-0P 654664-50-3P  
654664-51-4P 654664-52-5P 654664-53-6P  
654664-54-7P 654664-55-8P 654664-56-9P  
654664-57-0P 654664-58-1P 654664-59-2P  
654664-60-5P 654664-61-6P 654664-62-7P

(hydrocarbons having direct linkages between fluorenes and polycyclic aromatic groups as hosts or dopants for emitter **layers** in organic electroluminescent devices)

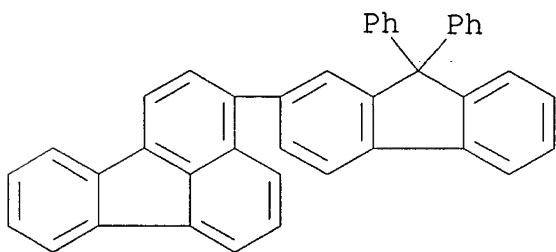
RN 653590-49-9 CAPLUS  
CN 9H-Fluorene, 9,9-dimethyl-2-(2-naphthalenyl)- (9CI) (CA INDEX NAME)



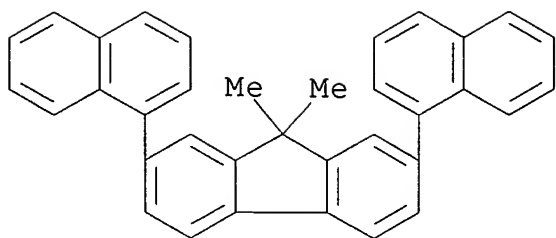
RN 653590-65-9 CAPLUS  
CN Fluoranthene, 3-(9,9-dimethyl-9H-fluoren-2-yl)- (9CI) (CA INDEX NAME)



RN 653590-82-0 CAPLUS  
CN Fluoranthene, 3-(9,9-diphenyl-9H-fluoren-2-yl)- (9CI) (CA INDEX NAME)

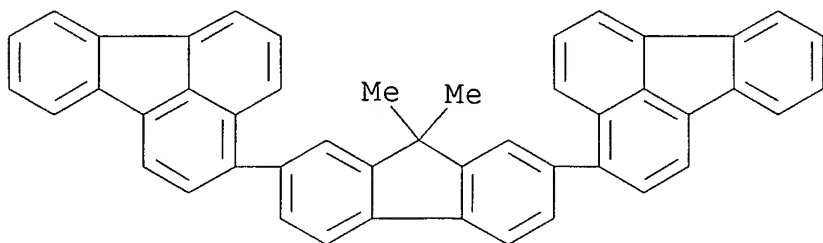


RN 653599-36-1 CAPLUS  
CN 9H-Fluorene, 9,9-dimethyl-2,7-di-1-naphthalenyl- (9CI) (CA INDEX NAME)



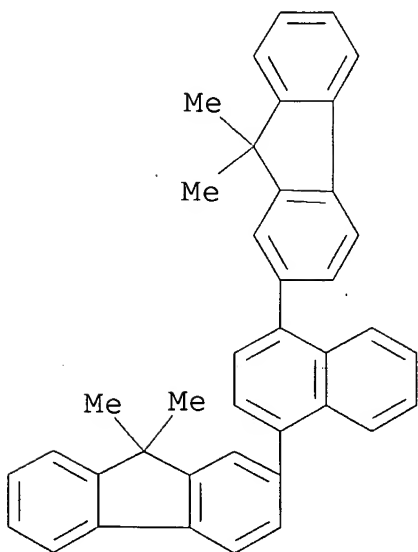
RN 653599-38-3 CAPLUS

CN Fluoranthene, 3,3'-(9,9-dimethyl-9H-fluorene-2,7-diyl)bis- (9CI)  
(CA INDEX NAME)

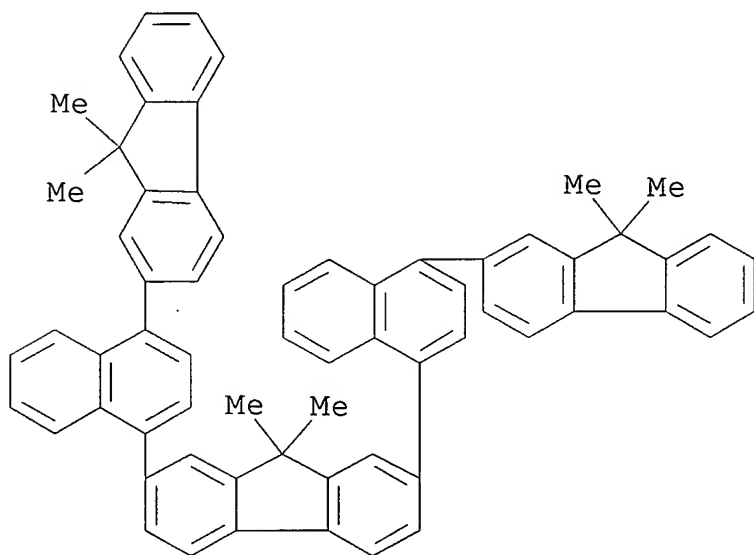


RN 653599-45-2 CAPLUS

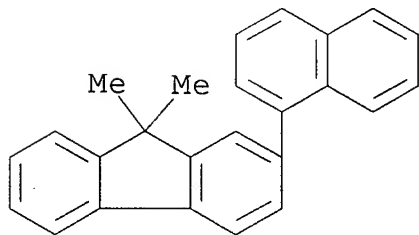
CN 9H-Fluorene, 2,2'-(1,4-naphthalenediyl)bis[9,9-dimethyl- (9CI)  
(CA INDEX NAME)



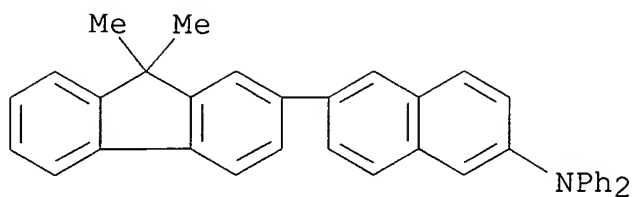
RN 653599-55-4 CAPLUS  
CN 9H-Fluorene, 2,7-bis[4-(9,9-dimethyl-9H-fluoren-2-yl)-1-naphthalenyl]-9,9-dimethyl- (9CI) (CA INDEX NAME)



RN 654664-36-5 CAPLUS  
CN 9H-Fluorene, 9,9-dimethyl-2-(1-naphthalenyl)- (9CI) (CA INDEX NAME)

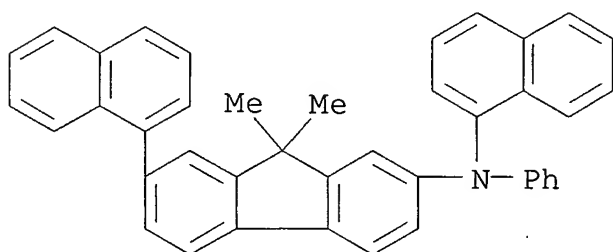


RN 654664-37-6 CAPLUS  
CN 2-Naphthalenamine, 6-(9,9-dimethyl-9H-fluoren-2-yl)-N,N-diphenyl- (9CI) (CA INDEX NAME)



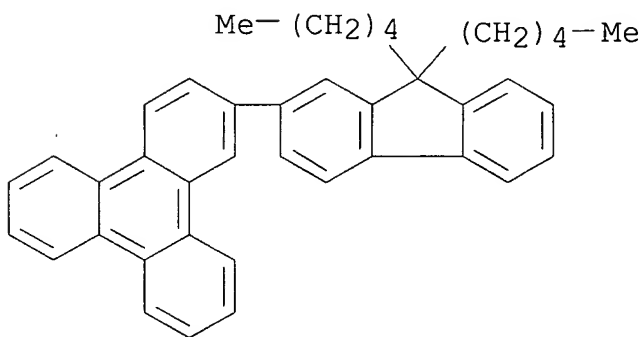
RN 654664-38-7 CAPLUS

CN 9H-Fluoren-2-amine, 9,9-dimethyl-N,7-di-1-naphthalenyl-N-phenyl-  
(9CI) (CA INDEX NAME)



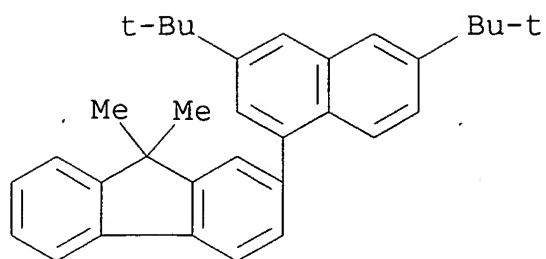
RN 654664-39-8 CAPLUS

CN Triphenylene, 2-(9,9-dipentyl-9H-fluoren-2-yl)- (9CI) (CA INDEX  
NAME)



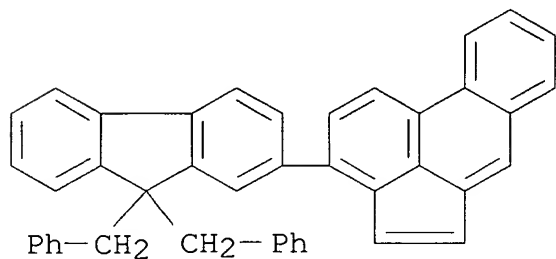
RN 654664-40-1 CAPLUS

CN 9H-Fluorene, 2-[3,6-bis(1,1-dimethylethyl)-1-naphthalenyl]-9,9-  
dimethyl- (9CI) (CA INDEX NAME)



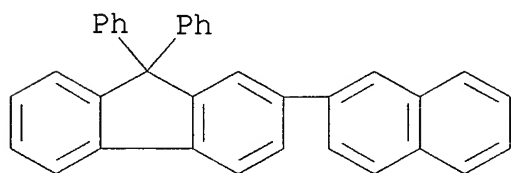
RN 654664-41-2 CAPLUS

CN Acephenanthrylene, 3-[9,9-bis(phenylmethyl)-9H-fluoren-2-yl]-  
(9CI) (CA INDEX NAME)



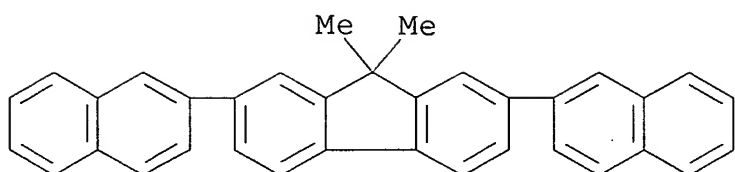
RN 654664-43-4 CAPLUS

CN 9H-Fluorene, 2-(2-naphthalenyl)-9,9-diphenyl- (9CI) (CA INDEX  
NAME)



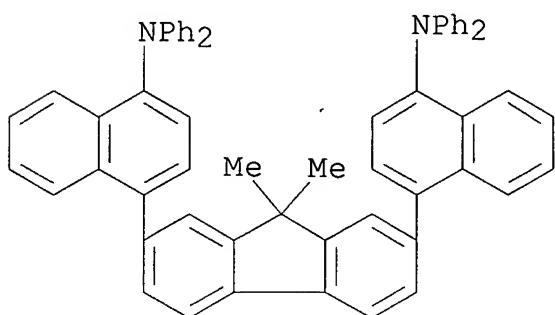
RN 654664-44-5 CAPLUS

CN 9H-Fluorene, 9,9-dimethyl-2,7-di-2-naphthalenyl- (9CI) (CA INDEX  
NAME)



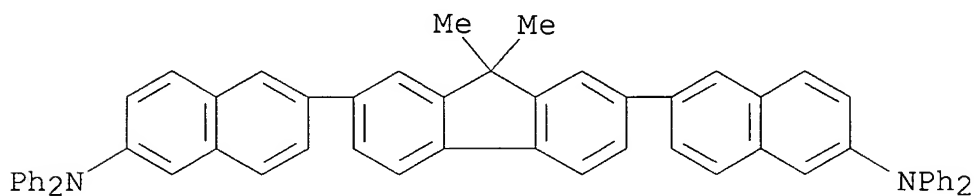
RN 654664-45-6 CAPLUS

CN 1-Naphthalenamine, 4,4'-(9,9-dimethyl-9H-fluorene-2,7-diyl)bis[N,N-diphenyl- (9CI) (CA INDEX NAME)



RN 654664-46-7 CAPLUS

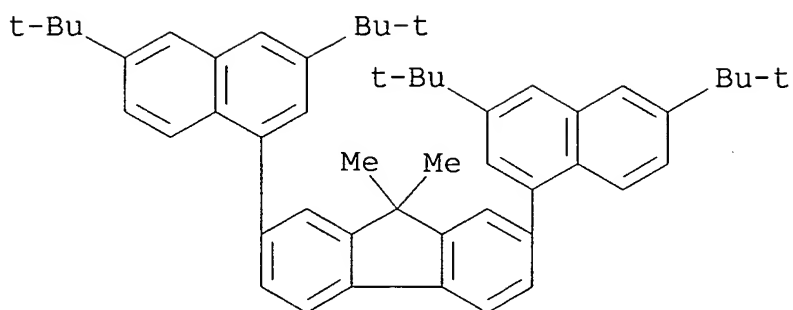
CN 2-Naphthalenamine, 6,6'-(9,9-dimethyl-9H-fluorene-2,7-diyl)bis[N,N-diphenyl- (9CI) (CA INDEX NAME)



RN 654664-47-8 CAPLUS

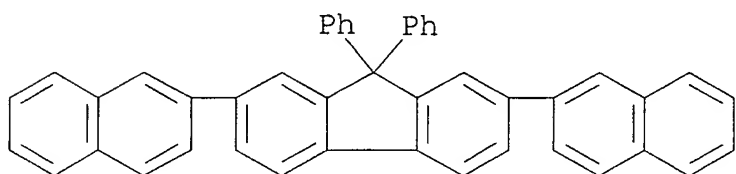
CN 9H-Fluorene, 2,7-bis[3,6-bis(1,1-dimethylethyl)-1-naphthalenyl]-9,9-dimethyl- (9CI) (CA INDEX NAME)





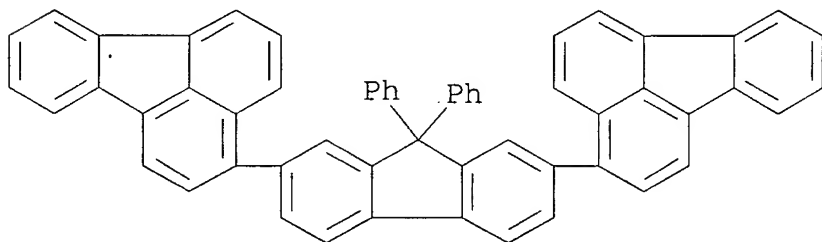
RN 654664-48-9 CAPLUS

CN 9H-Fluorene, 2,7-di-2-naphthalenyl-9,9-diphenyl- (9CI) (CA INDEX NAME)



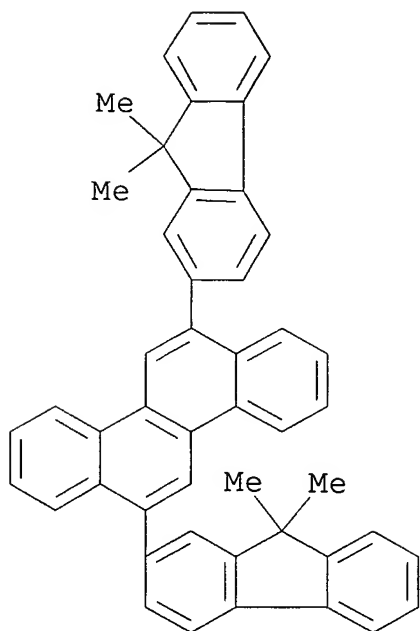
RN 654664-49-0 CAPLUS

CN Fluoranthene, 3,3'-(9,9-diphenyl-9H-fluorene-2,7-diyl)bis- (9CI) (CA INDEX NAME)



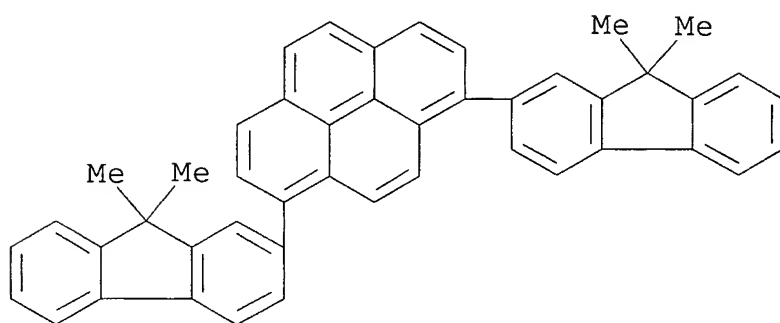
RN 654664-50-3 CAPLUS

CN Chrysene, 6,12-bis(9,9-dimethyl-9H-fluoren-2-yl)- (9CI) (CA INDEX NAME)



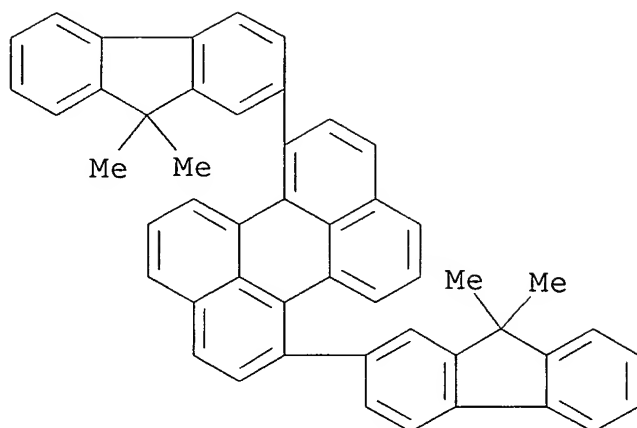
RN 654664-51-4 CAPLUS

CN Pyrene, 1,8-bis(9,9-dimethyl-9H-fluoren-2-yl)- (9CI) (CA INDEX NAME)

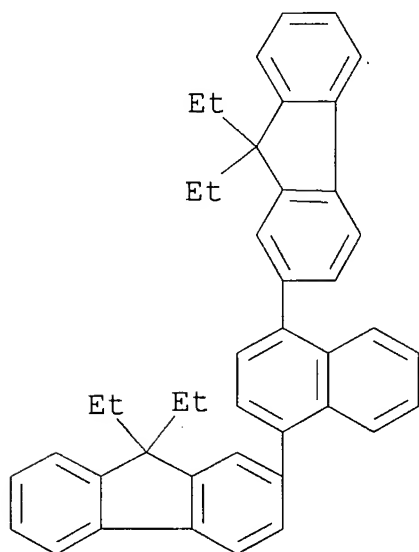


RN 654664-52-5 CAPLUS

CN Perylene, 1,7-bis(9,9-dimethyl-9H-fluoren-2-yl)- (9CI) (CA INDEX NAME)

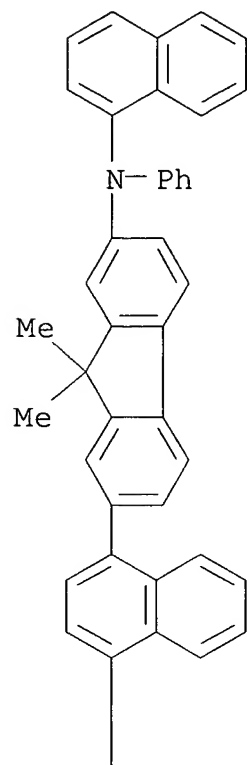


RN 654664-53-6 CAPLUS  
 CN 9H-Fluorene, 2,2'-(1,4-naphthalenediyl)bis[9,9-diethyl- (9CI) (CA  
 INDEX NAME)

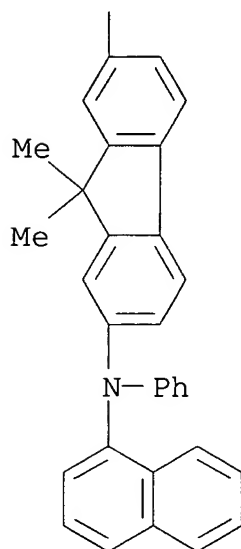


RN 654664-54-7 CAPLUS  
 CN 9H-Fluoren-2-amine, 7,7'-(1,4-naphthalenediyl)bis[9,9-dimethyl-N-1-  
 naphthalenyl-N-phenyl- (9CI) (CA INDEX NAME)

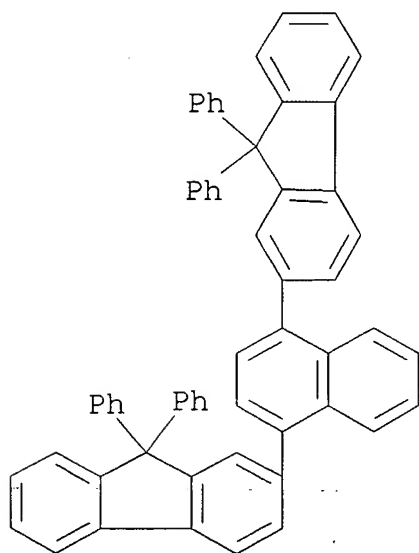
PAGE 1-A



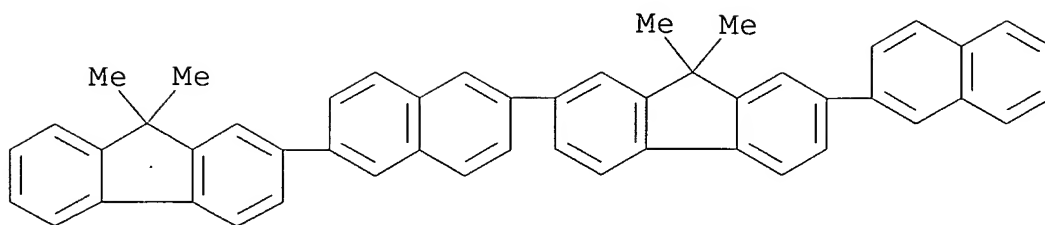
PAGE 2-A



RN 654664-55-8 CAPLUS  
CN 9H-Fluorene, 2,2'-(1,4-naphthalenediyl)bis[9,9-diphenyl- (9CI)  
(CA INDEX NAME)

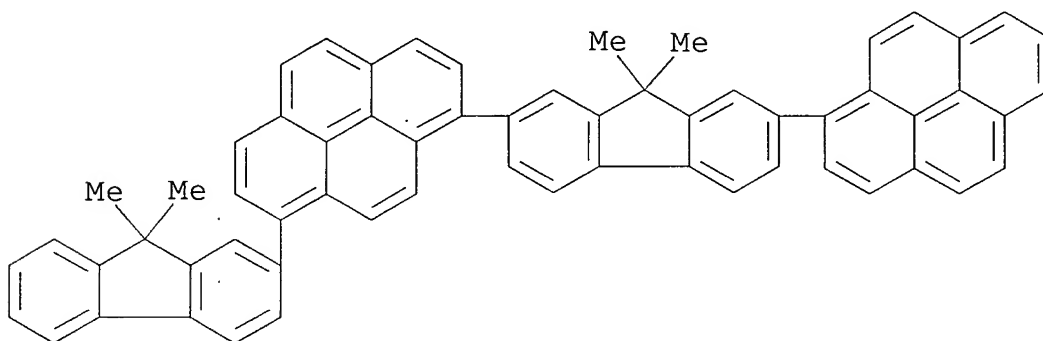


RN 654664-56-9 CAPLUS  
CN 9H-Fluorene, 2-[6-(9,9-dimethyl-9H-fluoren-2-yl)-2-naphthalenyl]-  
9,9-dimethyl-7-(2-naphthalenyl)- (9CI) (CA INDEX NAME)



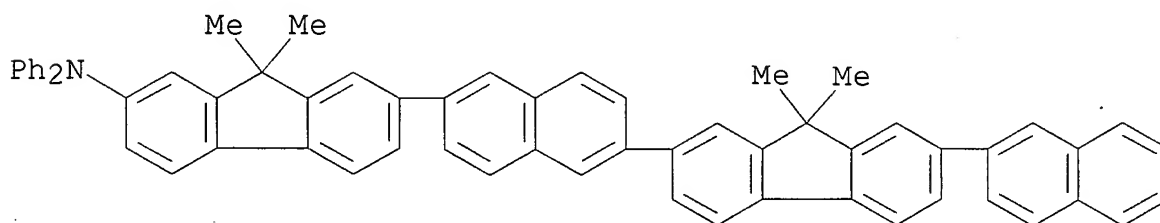
RN 654664-57-0 CAPLUS

CN Pyrene, 1-(9,9-dimethyl-9H-fluoren-2-yl)-8-[9,9-dimethyl-7-(1-pyrenyl)-9H-fluoren-2-yl]- (9CI) (CA INDEX NAME)



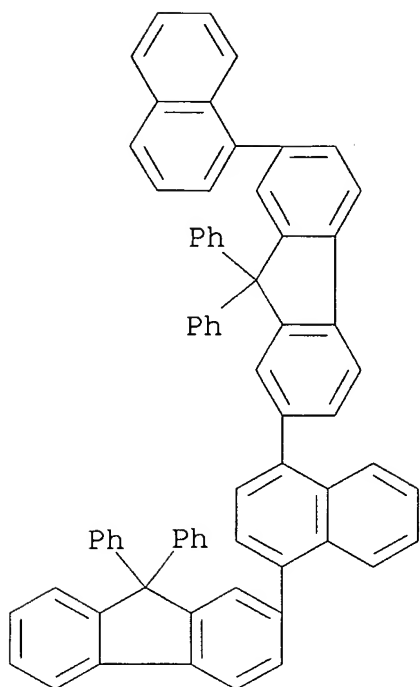
RN 654664-58-1 CAPLUS

CN 9H-Fluorene-2-amine, 7-[6-[9,9-dimethyl-7-(2-naphthalenyl)-9H-fluoren-2-yl]-2-naphthalenyl]-9,9-dimethyl-N,N-diphenyl- (9CI) (CA INDEX NAME)



RN 654664-59-2 CAPLUS

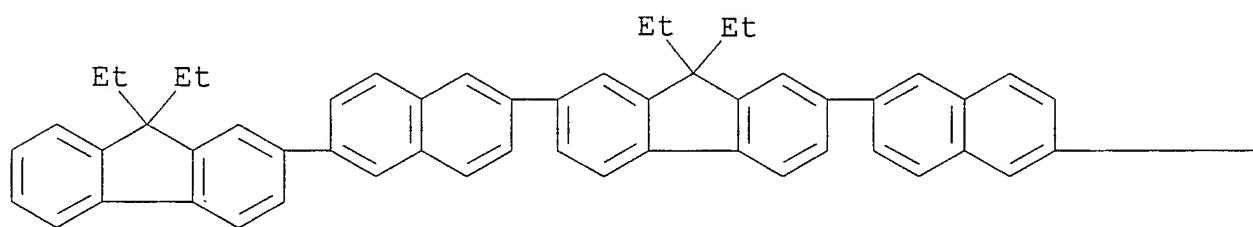
CN 9H-Fluorene, 2-[4-(9,9-diphenyl-9H-fluoren-2-yl)-1-naphthalenyl]-7-(1-naphthalenyl)-9,9-diphenyl- (9CI) (CA INDEX NAME)



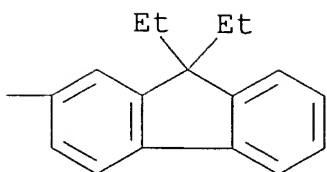
RN 654664-60-5 CAPLUS

CN 9H-Fluorene, 2,7-bis[6-(9,9-diethyl-9H-fluoren-2-yl)-2-naphthalenyl]-9,9-diethyl- (9CI) (CA INDEX NAME)

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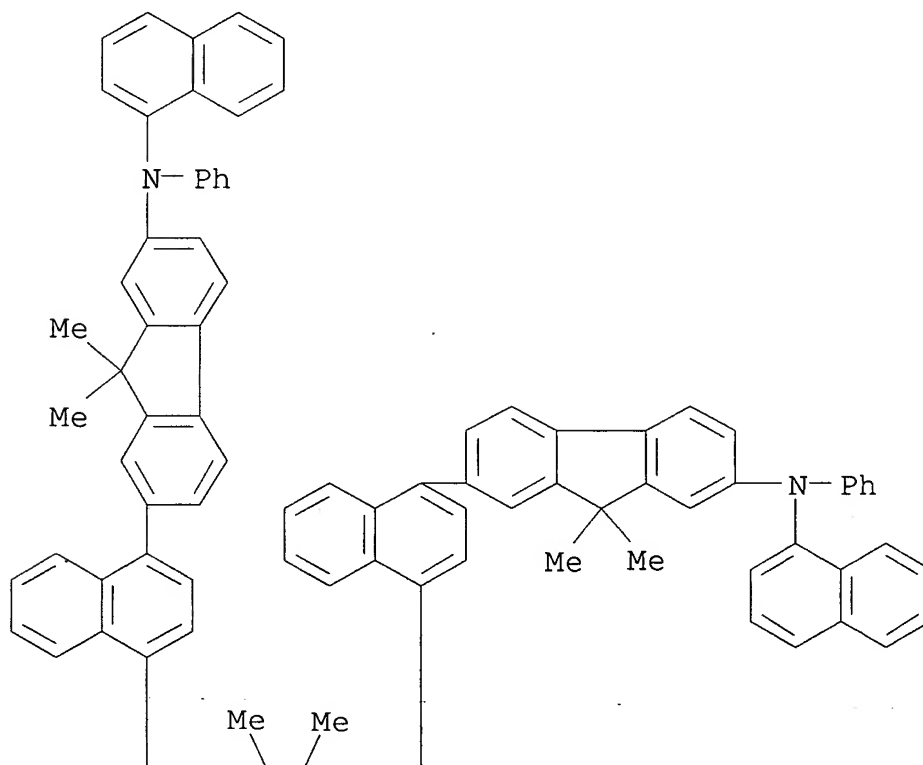


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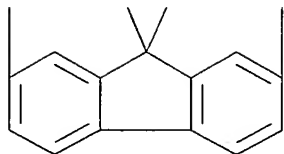
RN 654664-61-6 CAPLUS  
CN 9H-Fluoren-2-amine, 7,7'-[(9,9-dimethyl-9H-fluorene-2,7-diyl)di-4,1-naphthalenediyl]bis[9,9-dimethyl-N-1-naphthalenyl-N-phenyl-(9CI) (CA INDEX NAME)

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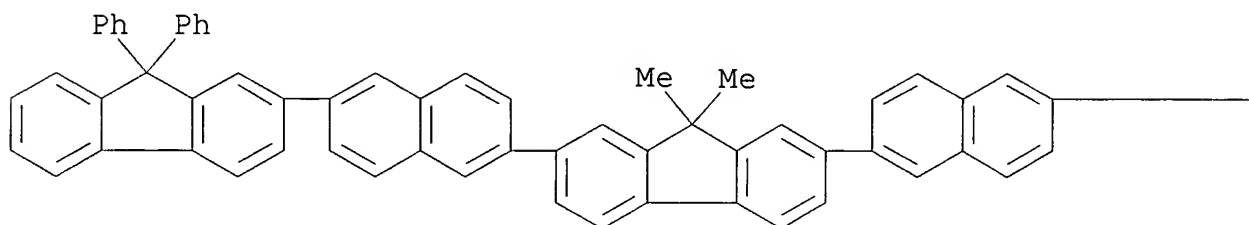


PAGE 2-A

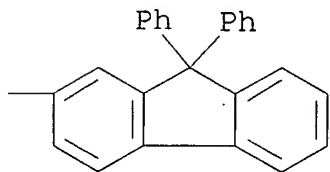


RN 654664-62-7 CAPLUS  
 CN 9H-Fluorene, 2,7-bis[6-(9,9-diphenyl-9H-fluoren-2-yl)-2-naphthalenyl]-9,9-dimethyl- (9CI) (CA INDEX NAME)

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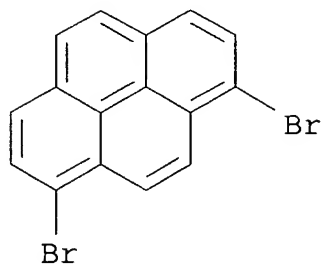
PAGE 1-B



IT 38303-35-4, 1,8-Dibromopyrene 131222-99-6,  
 6,12-Dibromochrysene 144981-85-1, 2-Iodo-9,9-  
 dimethylfluorene 144981-86-2, 2,7-Diiodo-9,9-  
 dimethylfluorene 186259-63-2 308144-59-4  
 333432-28-3 400607-30-9 400607-31-0  
 400607-58-1 474918-32-6 500343-28-2  
 654664-66-1 654664-68-3 654664-69-4  
 654664-70-7 654664-71-8 654664-72-9  
 654664-73-0 654664-74-1 654664-75-2  
 654664-76-3 654664-77-4 654664-78-5  
 (hydrocarbons having direct linkages between fluorenes and  
 polycyclic aromatic groups as hosts or dopants for emitter  
 layers in organic electroluminescent devices)

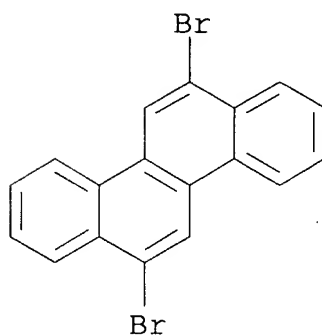
RN 38303-35-4 CAPLUS

.CN Pyrene, 1,8-dibromo- (9CI) (CA INDEX NAME)



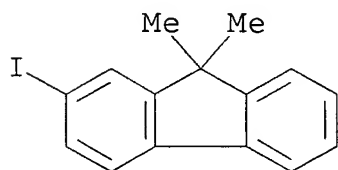
RN 131222-99-6 CAPLUS

CN Chrysene, 6,12-dibromo- (9CI) (CA INDEX NAME)



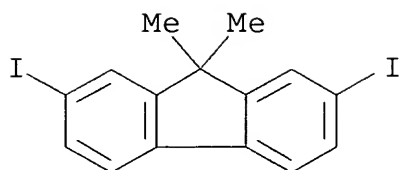
RN 144981-85-1 CAPLUS

CN 9H-Fluorene, 2-iodo-9,9-dimethyl- (9CI) (CA INDEX NAME)



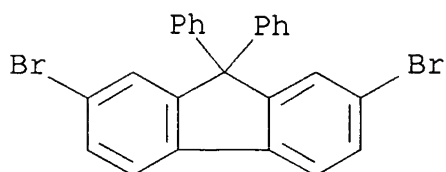
RN 144981-86-2 CAPLUS

CN 9H-Fluorene, 2,7-diiodo-9,9-dimethyl- (9CI) (CA INDEX NAME)



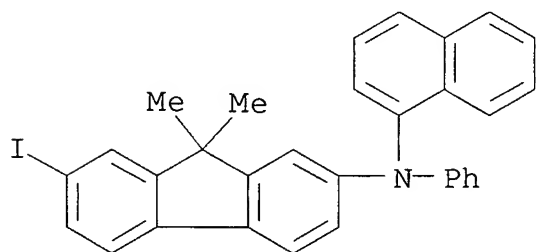
RN 186259-63-2 CAPLUS

CN 9H-Fluorene, 2,7-dibromo-9,9-diphenyl- (9CI) (CA INDEX NAME)



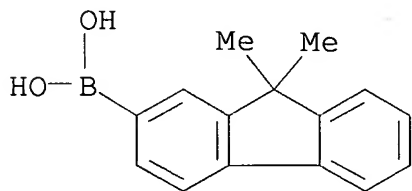
RN 308144-59-4 CAPLUS

CN 9H-Fluoren-2-amine, 7-iodo-9,9-dimethyl-N-1-naphthalenyl-N-phenyl- (9CI) (CA INDEX NAME)



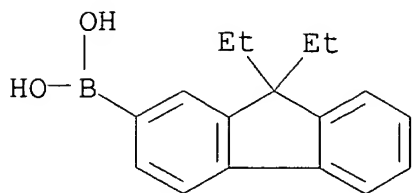
RN 333432-28-3 CAPLUS

CN Boronic acid, (9,9-dimethyl-9H-fluoren-2-yl)- (9CI) (CA INDEX NAME)



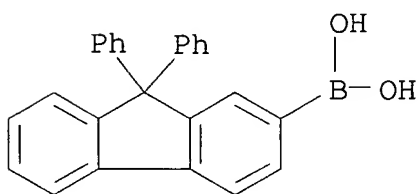
RN 400607-30-9 CAPLUS

.CN Boronic acid, (9,9-diethyl-9H-fluoren-2-yl)- (9CI) (CA INDEX NAME)



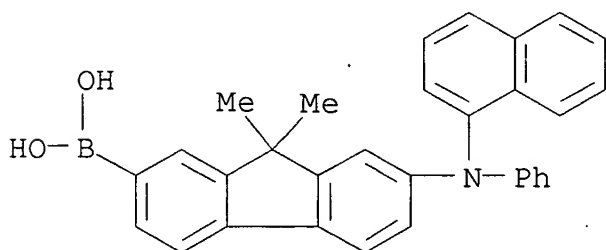
RN 400607-31-0 CAPLUS

CN Boronic acid, (9,9-diphenyl-9H-fluoren-2-yl)- (9CI) (CA INDEX NAME)



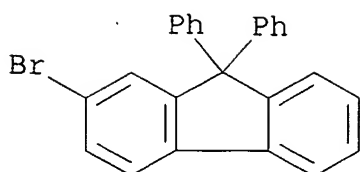
RN 400607-58-1 CAPLUS

CN Boronic acid, [9,9-dimethyl-7-(1-naphthalenylphenylamino)-9H-fluoren-2-yl]- (9CI) (CA INDEX NAME)



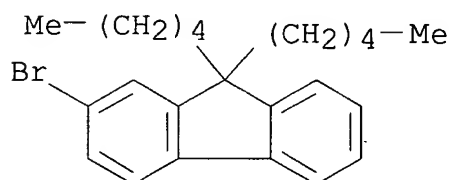
RN 474918-32-6 CAPLUS

CN 9H-Fluorene, 2-bromo-9,9-diphenyl- (9CI) (CA INDEX NAME)



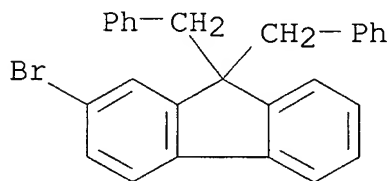
RN 500343-28-2 CAPLUS

CN 9H-Fluorene, 2-bromo-9,9-dipentyl- (9CI) (CA INDEX NAME)



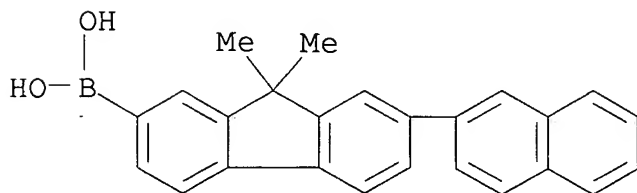
RN 654664-66-1 CAPLUS

CN 9H-Fluorene, 2-bromo-9,9-bis(phenylmethyl)- (9CI) (CA INDEX NAME)



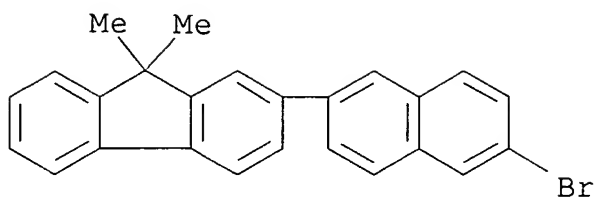
RN 654664-68-3 CAPLUS

CN Boronic acid, [9,9-dimethyl-7-(2-naphthalenyl)-9H-fluoren-2-yl]- (9CI) (CA INDEX NAME)



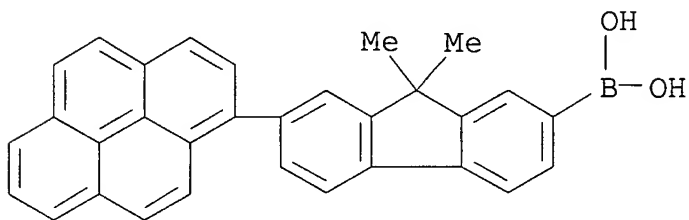
RN 654664-69-4 CAPLUS

CN 9H-Fluorene, 2-(6-bromo-2-naphthalenyl)-9,9-dimethyl- (9CI) (CA INDEX NAME)



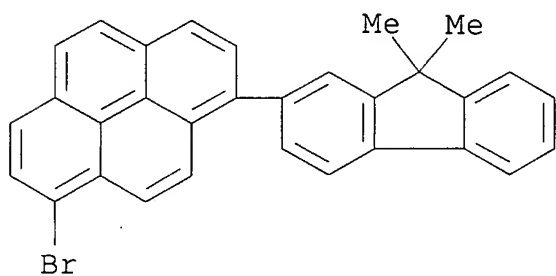
RN 654664-70-7 CAPLUS

CN Boronic acid, [9,9-dimethyl-7-(1-pyrenyl)-9H-fluoren-2-yl]- (9CI)  
(CA INDEX NAME)



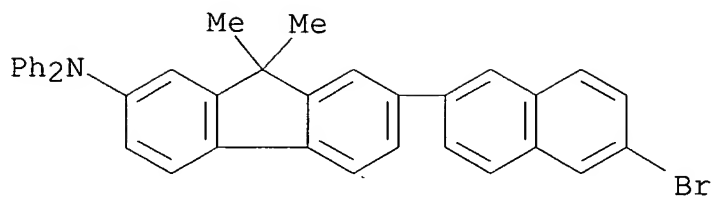
RN 654664-71-8 CAPLUS

CN Pyrene, 1-bromo-8-(9,9-dimethyl-9H-fluoren-2-yl)- (9CI) (CA INDEX  
NAME)



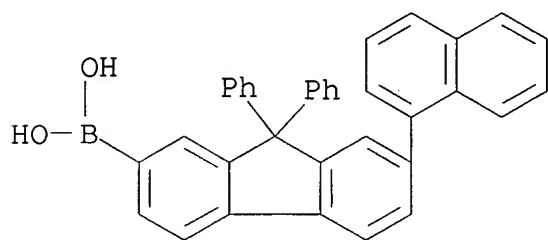
RN 654664-72-9 CAPLUS

CN 9H-Fluoren-2-amine, 7-(6-bromo-2-naphthalenyl)-9,9-dimethyl-N,N-  
diphenyl- (9CI) (CA INDEX NAME)



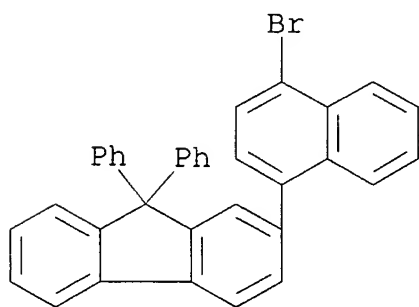
RN 654664-73-0 CAPLUS

CN Boronic acid, [7-(1-naphthalenyl)-9,9-diphenyl-9H-fluoren-2-yl]-  
(9CI) (CA INDEX NAME)



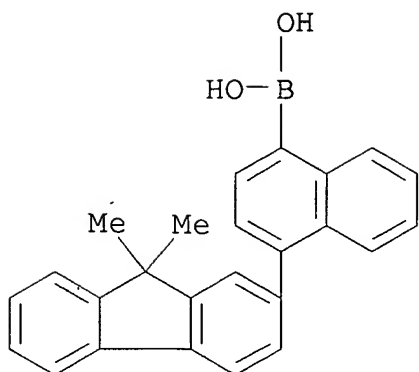
RN 654664-74-1 CAPLUS

CN 9H-Fluorene, 2-(4-bromo-1-naphthalenyl)-9,9-diphenyl- (9CI) (CA  
INDEX NAME)



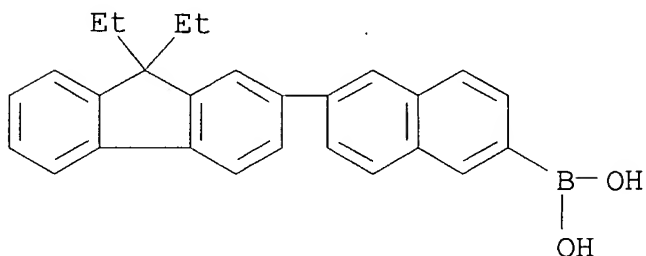
RN 654664-75-2 CAPLUS

CN Boronic acid, [4-(9,9-dimethyl-9H-fluoren-2-yl)-1-naphthalenyl]-  
(9CI) (CA INDEX NAME)



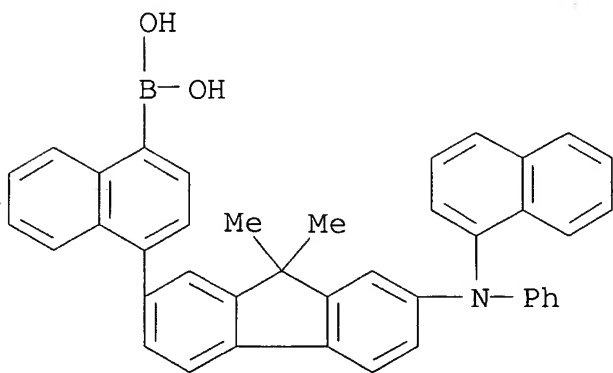
RN 654664-76-3 CAPLUS

CN Boronic acid, [6-(9,9-diethyl-9H-fluoren-2-yl)-2-naphthalenyl]-  
(9CI) (CA INDEX NAME)



RN 654664-77-4 CAPLUS

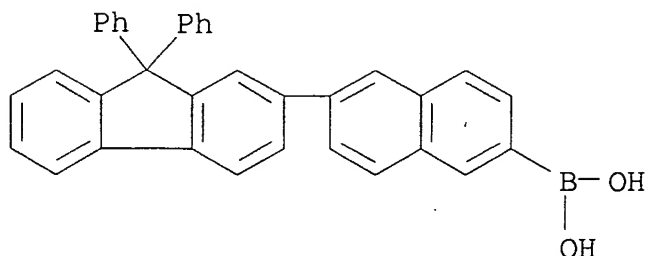
CN Boronic acid, [4-[9,9-dimethyl-7-(1-naphthalenylphenylamino)-9H-fluoren-2-yl]-1-naphthalenyl]- (9CI) (CA INDEX NAME)



RN 654664-78-5 CAPLUS



.CN Boronic acid, [6-(9,9-diphenyl-9H-fluoren-2-yl)-2-naphthalenyl]-  
(9CI) (CA INDEX NAME)



- IC ICM C07C013-547  
ICS C07C013-62; C07C013-66; C07C211-57; C07C211-61; C09K011-06;  
H05B033-14
- CC 73-11 (**Optical**, Electron, and Mass Spectroscopy and  
Other Related Properties)  
Section cross-reference(s): 25
- IT Amines, uses  
(aryl, tertiary, hosts; hydrocarbons having direct linkages  
between fluorenes and polycyclic aromatic groups as hosts or  
dopants for emitter **layers** in organic electroluminescent  
devices)
- IT **Luminescent** substances  
(electroluminescent; hydrocarbons having direct linkages  
between fluorenes and polycyclic aromatic groups as hosts or  
dopants for emitter **layers** in organic electroluminescent  
devices)
- IT Organometallic compounds  
(hosts; hydrocarbons having direct linkages between fluorenes  
and polycyclic aromatic groups as hosts or dopants for emitter  
**layers** in organic electroluminescent devices)
- IT Dopants  
Electroluminescent devices  
(hydrocarbons having direct linkages between fluorenes and  
polycyclic aromatic groups as hosts or dopants for emitter  
**layers** in organic electroluminescent devices)
- IT 51325-91-8, DCM 1 55035-42-2 144810-08-2 **194295-98-2**  
(dopant; hydrocarbons having direct linkages between fluorenes  
and polycyclic aromatic groups as hosts or dopants for emitter  
**layers** in organic electroluminescent devices)
- IT 2085-33-8, Tris(8-quinolinolato)aluminum 24601-13-6,  
Bis(2-methyl-8-quinolinolato)aluminum-μ-oxo-bis(2-methyl-8-  
quinolinolato)aluminum 123847-85-8, 4,4'-Bis[N-phenyl-N-(1''-  
naphthyl)amino]biphenyl 146162-54-1, Bis(2-methyl-8-  
quinolinolato)(4-phenylphenolato)aluminum

(hydrocarbons having direct linkages between fluorenes and polycyclic aromatic groups as hosts or dopants for emitter layers in organic electroluminescent devices)

IT 653590-49-9P 653590-65-9P 653590-82-0P  
653599-36-1P 653599-38-3P 653599-45-2P  
653599-55-4P 654664-36-5P 654664-37-6P  
654664-38-7P 654664-39-8P 654664-40-1P  
654664-41-2P 654664-43-4P 654664-44-5P  
654664-45-6P 654664-46-7P 654664-47-8P  
654664-48-9P 654664-49-0P 654664-50-3P  
654664-51-4P 654664-52-5P 654664-53-6P  
654664-54-7P 654664-55-8P 654664-56-9P  
654664-57-0P 654664-58-1P 654664-59-2P  
654664-60-5P 654664-61-6P 654664-62-7P

(hydrocarbons having direct linkages between fluorenes and polycyclic aromatic groups as hosts or dopants for emitter layers in organic electroluminescent devices)

IT 83-53-4, 1,4-Dibromonaphthalene 13922-41-3, 1-Naphthylboric acid  
32316-92-0, 2-Naphthylboric acid 38303-35-4,  
1,8-Dibromopyrene 126822-80-8 131222-99-6,  
6,12-Dibromochrysene 144981-85-1, 2-Iodo-9,9-  
dimethylfluorene 144981-86-2, 2,7-Diiodo-9,9-  
dimethylfluorene 186259-63-2 308144-59-4  
333432-28-3 359012-63-8 400607-30-9  
400607-31-0 400607-58-1 405270-76-0  
474918-32-6 500343-28-2 503299-18-1  
654664-63-8 654664-65-0 654664-66-1 654664-67-2  
654664-68-3 654664-69-4 654664-70-7  
654664-71-8 654664-72-9 654664-73-0  
654664-74-1 654664-75-2 654664-76-3  
654664-77-4 654664-78-5

(hydrocarbons having direct linkages between fluorenes and polycyclic aromatic groups as hosts or dopants for emitter layers in organic electroluminescent devices)

L40 ANSWER 27 OF 65 CAPLUS COPYRIGHT 2005 ACS on STN

ACCESSION NUMBER: 2004:76492 CAPLUS

DOCUMENT NUMBER: 140:136180

TITLE: Amorphous polyphenol derivatives with good  
heat resistance and organic electroluminescent  
devices

INVENTOR(S): Fukuoka, Naohiko; Tagami, Sanae; Fujiwara,  
Toru; Shionoya, Hidehiko

PATENT ASSIGNEE(S): Chemipro Kasei Ltd., Japan

SOURCE: Jpn. Kokai Tokkyo Koho, 67 pp.

CODEN: JKXXAF

DOCUMENT TYPE: Patent

LANGUAGE: Japanese

FAMILY ACC. NUM. COUNT: 1

## PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 2004026757	A2	20040129	JP 2002-188237	2002 0627
PRIORITY APPLN. INFO.:			JP 2002-188237	2002 0627
OTHER SOURCE(S):		MARPAT 140:136180		
GI				

\* STRUCTURE DIAGRAM TOO LARGE FOR DISPLAY - AVAILABLE VIA OFFLINE PRINT  
\*

AB The derivs. are I [Q = A, B, etc.; R1, R20, R21 = H, (halo)alkyl, cycloalkyl, etc.; R2-R19 = H, halo, (halo)alkyl, etc.; M = C, D; Ar1 = arylene, oxydiaryldiyl; R22 = H, (cyclo)alkyl, aryl; R23-R26 = H, alkyl, alkoxy, aryl; R27-R30 = H, alkyl, alkoxy, aralkyl, etc.; h, m, n = 1-3; j, k, p = 1-4]. Emitter or hole-transport **layers** of the devices are easily manufactured by solution casting of the derivs. without polymeric binders.

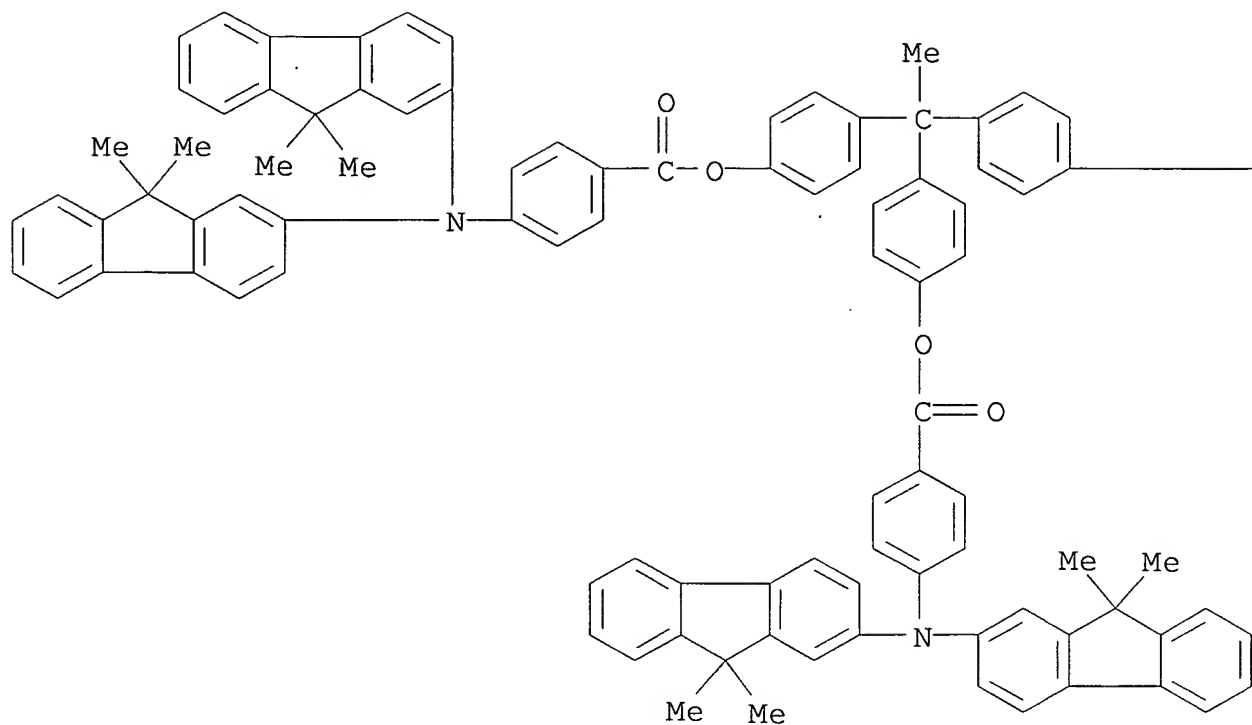
IT 648908-10-5P 648908-12-7P 648908-14-9P  
648908-16-1P 648908-17-2P 648908-18-3P  
648908-19-4P 648908-20-7P 648908-22-9P  
648908-23-0P

(heat-resistant amorphous polyphenol derivs. suitable for solution casting for manufacture of organic electroluminescent devices)

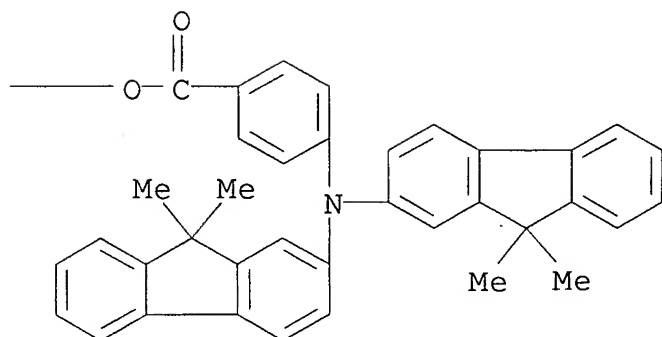
RN 648908-10-5 CAPLUS

CN Benzoic acid, 4-[bis(9,9-dimethyl-9H-fluoren-2-yl)amino]-, ethylidynetri-4,1-phenylene ester (9CI) (CA INDEX NAME)

PAGE 1-A

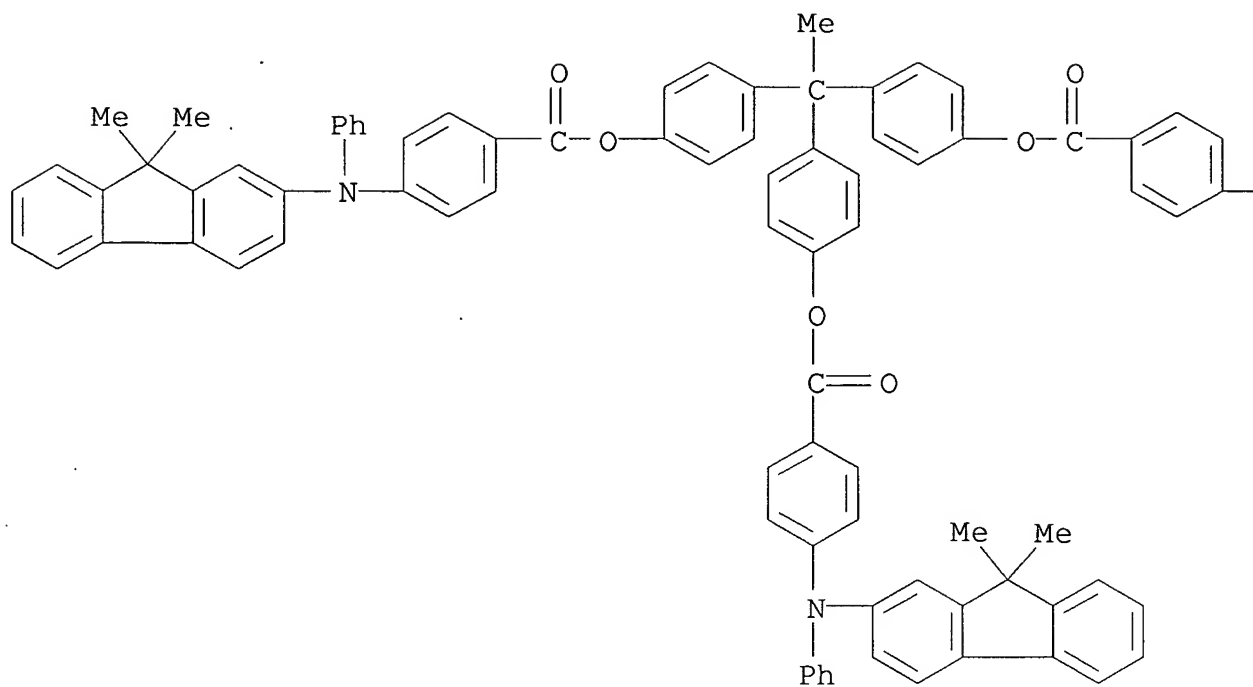


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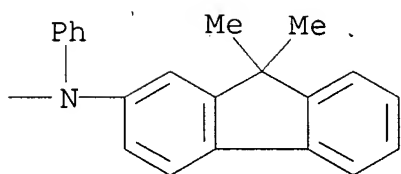


RN 648908-12-7 CAPLUS  
 CN Benzoic acid, 4-[(9,9-dimethyl-9H-fluoren-2-yl)phenylamino]-,  
 ethylidynetri-4,1-phenylene ester (9CI) (CA INDEX NAME)

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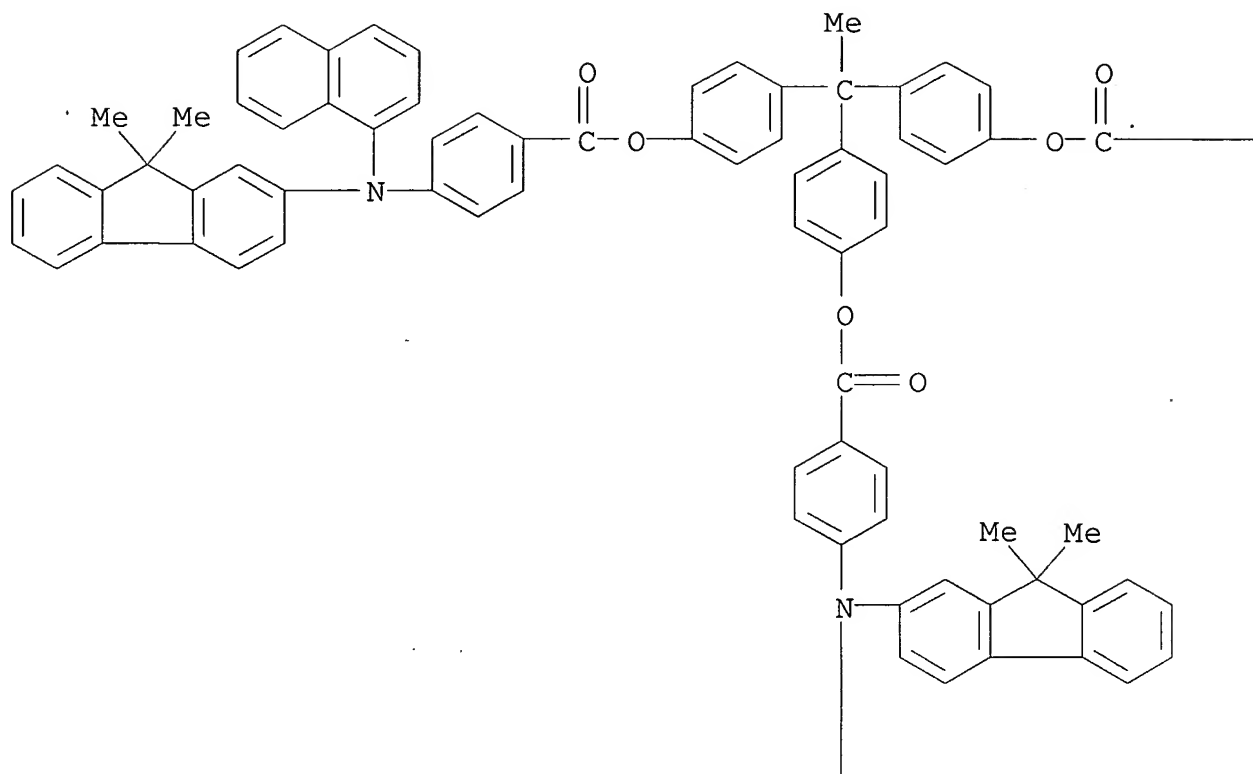
PAGE 1-B



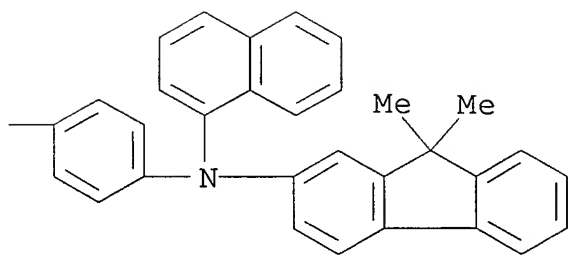
RN 648908-14-9 CAPLUS

CN Benzoic acid, 4-[(9,9-dimethyl-9H-fluoren-2-yl)-1-naphthalenylamino]-, ethylidynetri-4,1-phenylene ester (9CI) (CA INDEX NAME)

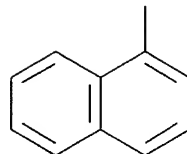
PAGE 1-A



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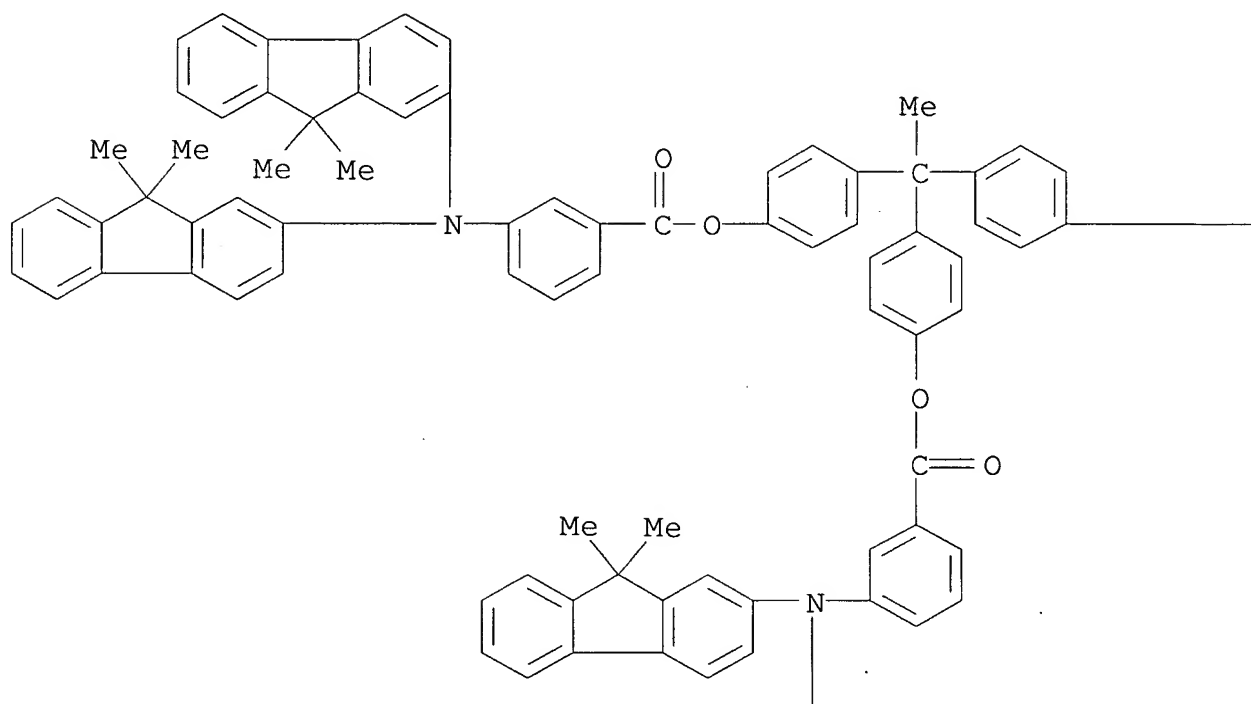


PAGE 2-A

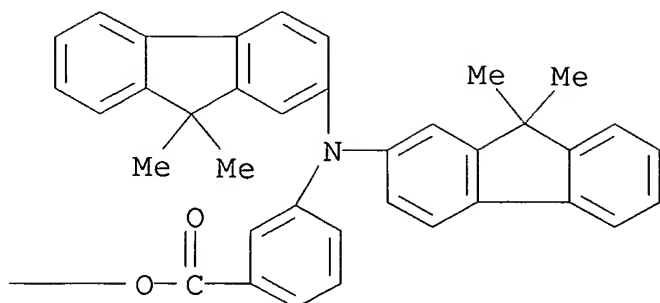


RN 648908-16-1 CAPLUS  
CN Benzoic acid, 3-[bis(9,9-dimethyl-9H-fluoren-2-yl)amino]-,  
ethylidynetri-4,1-phenylene ester (9CI) (CA INDEX NAME)

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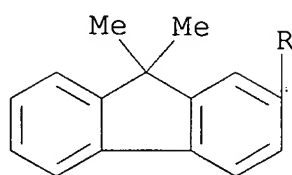


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PAGE 2-A

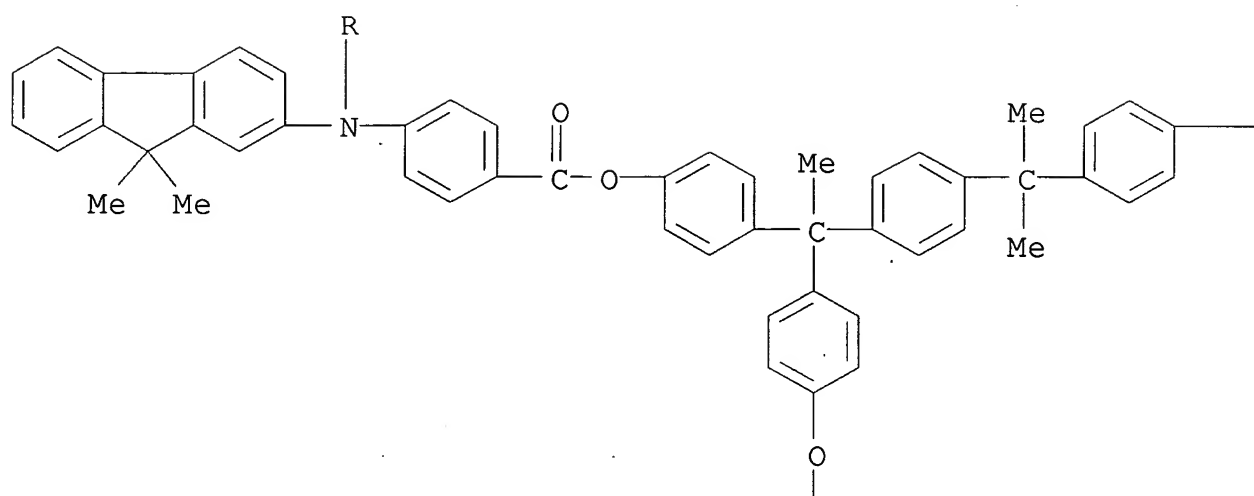
|  
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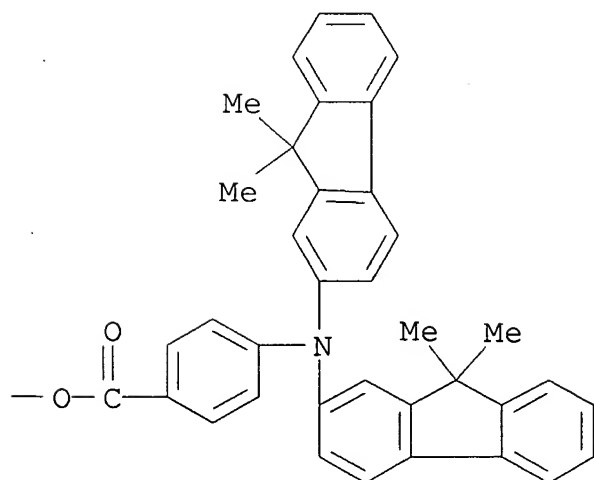
RN 648908-17-2 CAPLUS  
 CN Benzoic acid, 4-[bis(9,9-dimethyl-9H-fluoren-2-yl)amino]-,  
 [1-[4-[1-[4-[[4-[bis(9,9-dimethyl-9H-fluoren-2-yl)amino]benzoyl]oxy]phenyl]-1-methylethyl]phenyl]ethylidene]di-  
 4,1-phenylene ester (9CI) (CA INDEX NAME)



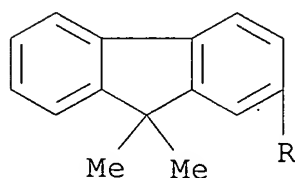
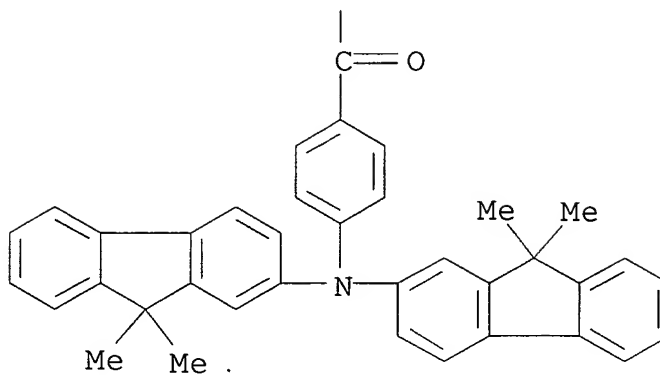
PAGE 1-A



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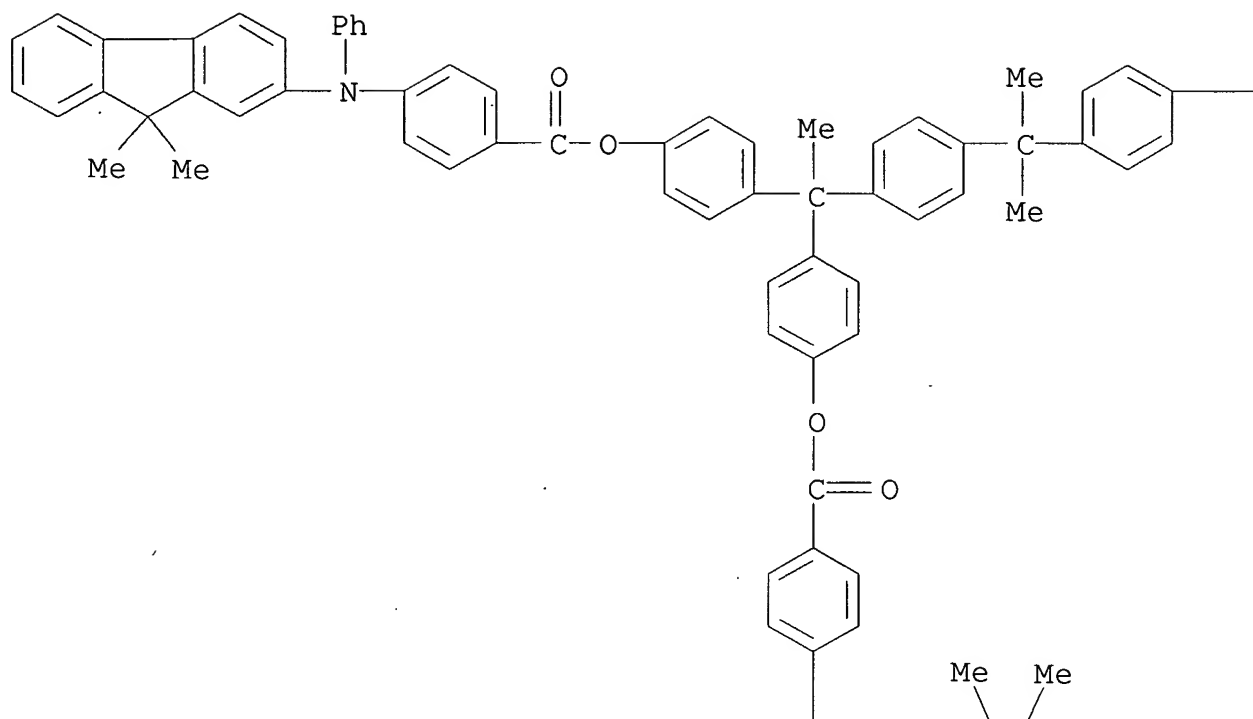


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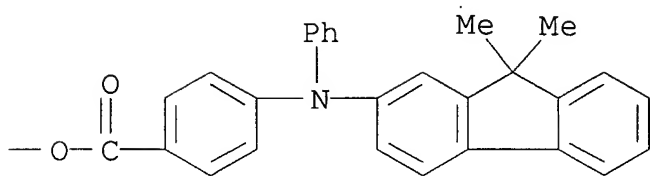


RN 648908-18-3 CAPLUS  
 CN Benzoic acid, 4-[(9,9-dimethyl-9H-fluoren-2-yl)phenylamino]-,  
 [1-[4-[1-[4-[[4-[(9,9-dimethyl-9H-fluoren-2-yl)phenylamino]benzoyl]oxy]phenyl]-1-methylethyl]phenyl]ethylidene  
 ]di-4,1-phenylene ester (9CI) (CA INDEX NAME)

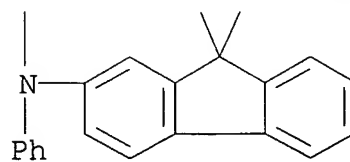
PAGE 1-A



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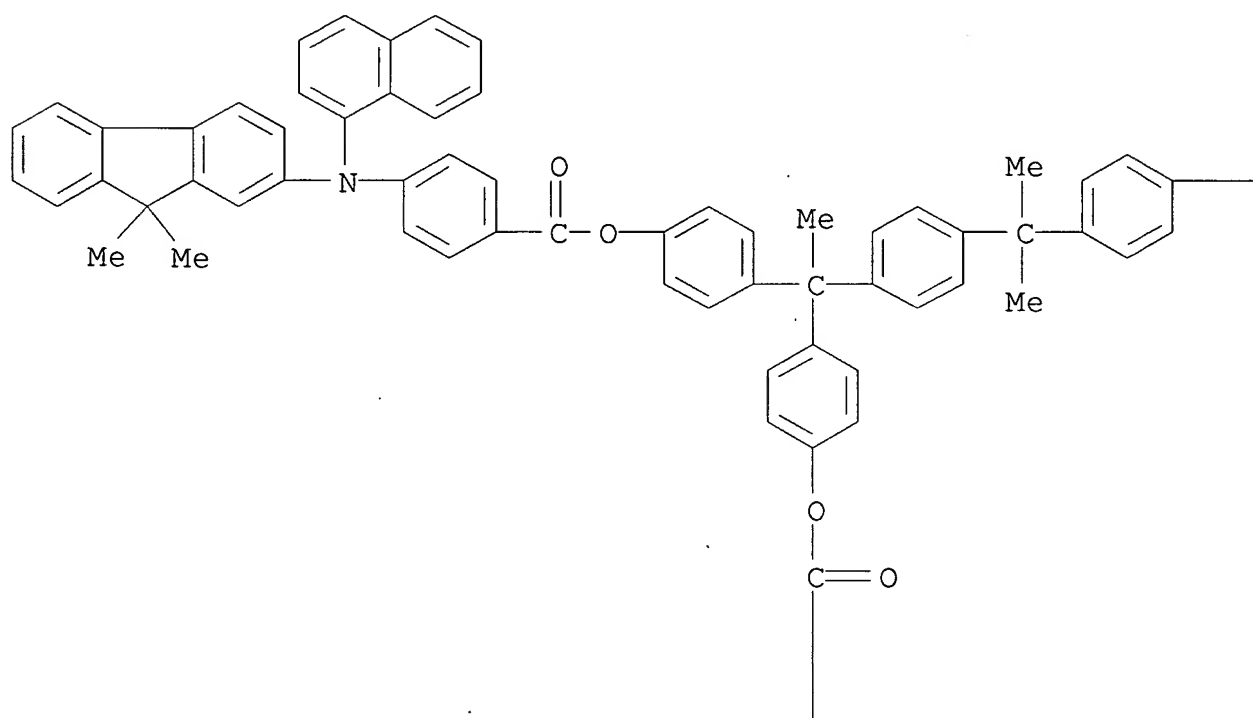
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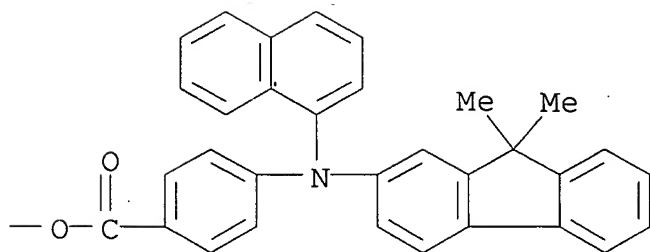
RN 648908-19-4 CAPLUS

CN Benzoic acid, 4-[(9,9-dimethyl-9H-fluoren-2-yl)-1-naphthalenylamino]-, [1-[4-[1-[4-[4-[(9,9-dimethyl-9H-fluoren-2-yl)-1-naphthalenylamino]benzoyl]oxy]phenyl]-1-methylethyl]phenyl]ethylidene]di-4,1-phenylene ester (9CI) (CA INDEX NAME)

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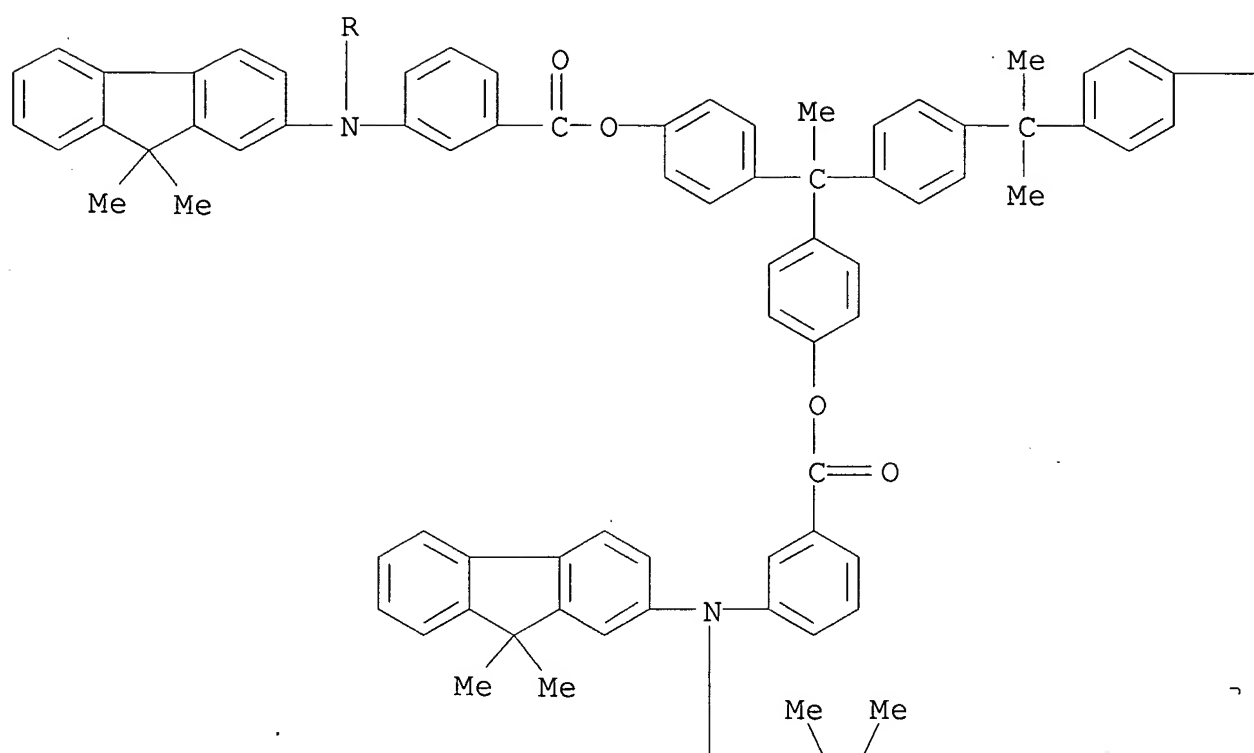


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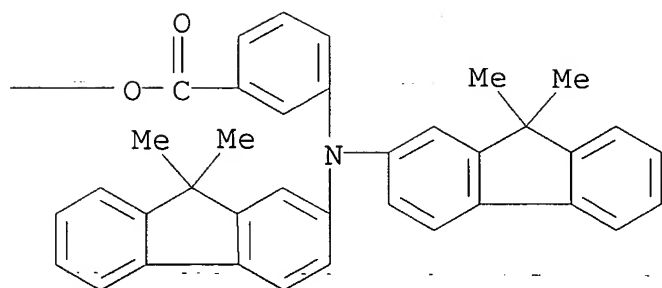




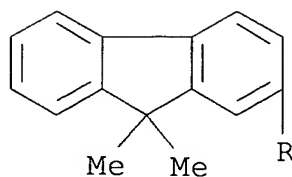
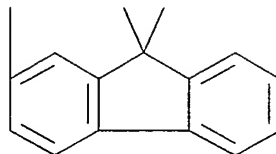
PAGE 1-A



PAGE 1-B

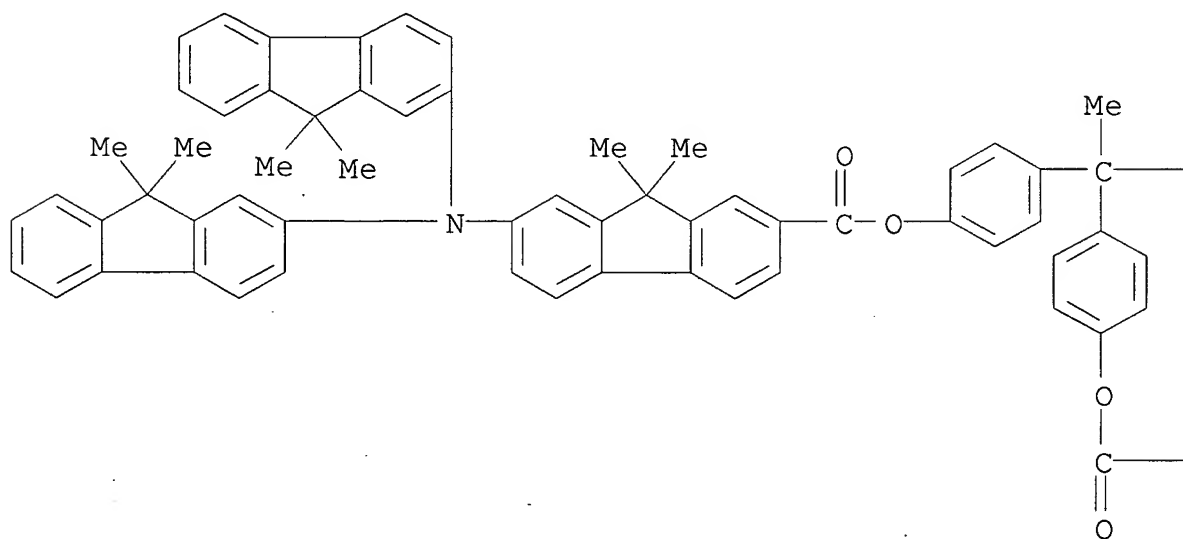


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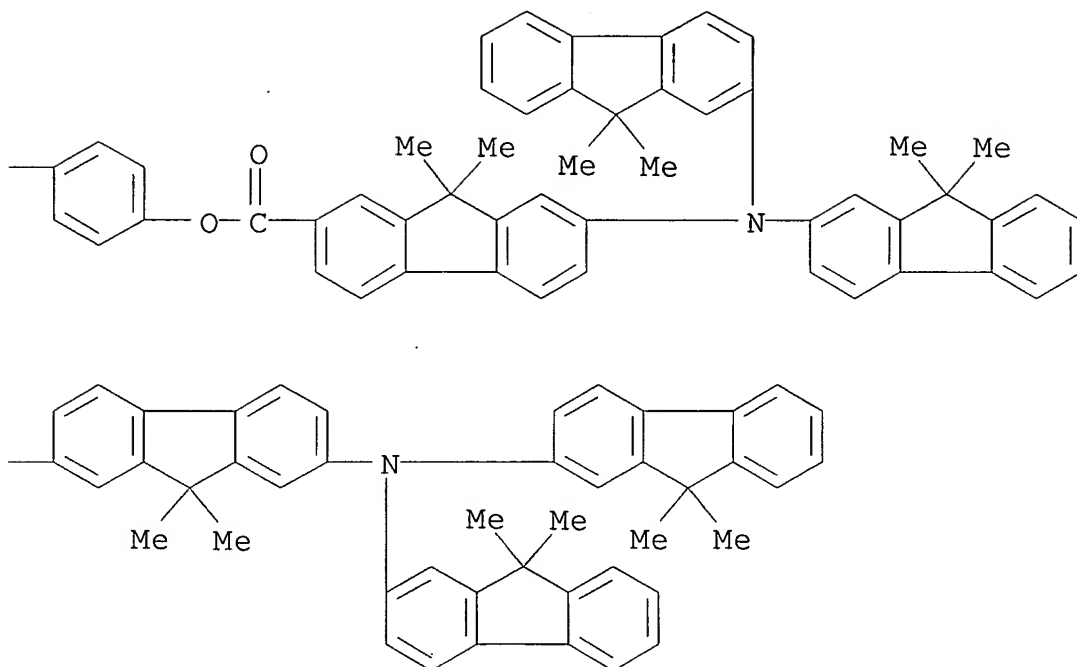


RN 648908-22-9 CAPLUS  
CN 9H-Fluorene-2-carboxylic acid, 7-[bis(9,9-dimethyl-9H-fluoren-2-yl)amino]-9,9-dimethyl-, ethylidynetri-4,1-phenylene ester (9CI)  
(CA INDEX NAME)

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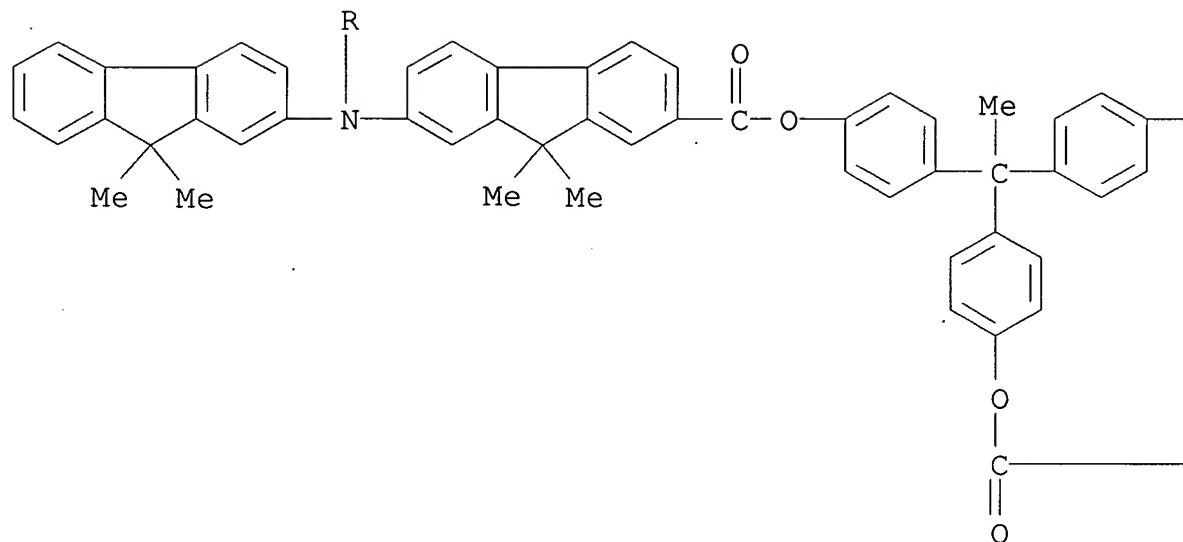
PAGE 1-B



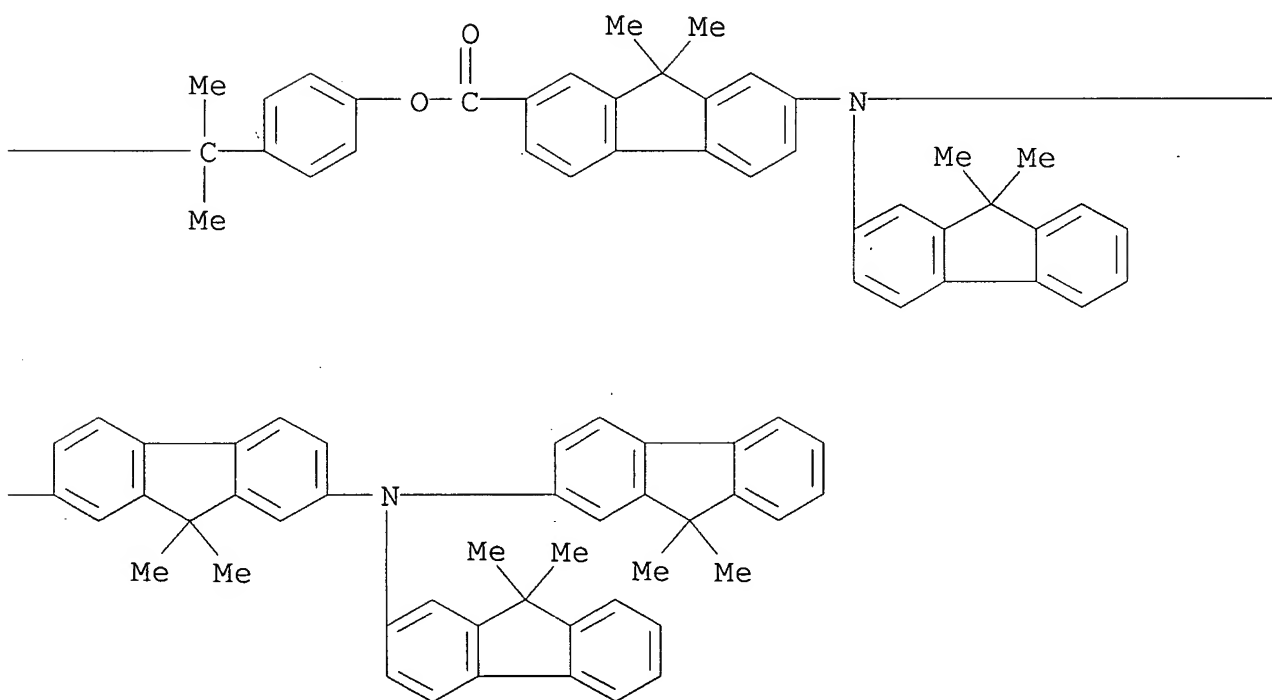
RN 648908-23-0 CAPLUS  
 CN 9H-Fluorene-2-carboxylic acid, 7-[bis(9,9-dimethyl-9H-fluoren-2-yl)amino]-9,9-dimethyl-, [1-[4-[1-[4-[[[7-[bis(9,9-dimethyl-9H-fluoren-2-yl)amino]-9,9-dimethyl-9H-fluoren-2-yl]carbonyl]oxy]phenyl]-1-methylethyl]phenyl]ethylidene]di-4,1-phenylene ester (9CI) (CA INDEX NAME)



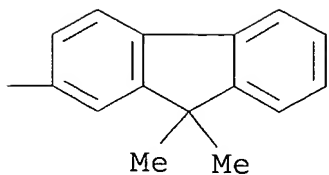
PAGE 1-A



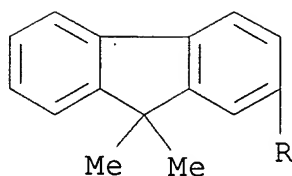
PAGE 1-B



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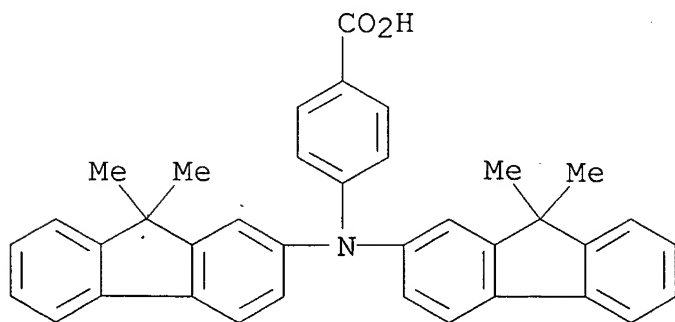


IT 648908-09-2P

(heat-resistant amorphous polyphenol derivs. suitable for solution casting for manufacture of organic electroluminescent devices)

RN 648908-09-2 CAPLUS

CN Benzoic acid, 4-[bis(9,9-dimethyl-9H-fluoren-2-yl)amino]- (9CI)  
(CA INDEX NAME)

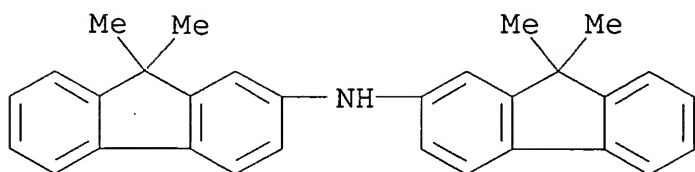


IT 500717-23-7 648908-11-6 648908-13-8  
648908-15-0 648908-21-8

(heat-resistant amorphous polyphenol derivs. suitable for solution casting for manufacture of organic electroluminescent devices)

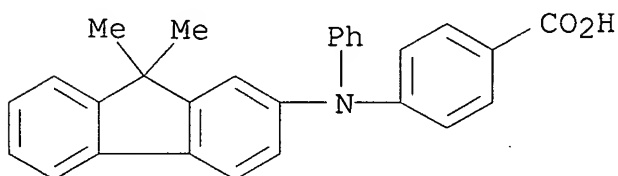
RN 500717-23-7 CAPLUS

CN 9H-Fluoren-2-amine, N-(9,9-dimethyl-9H-fluoren-2-yl)-9,9-dimethyl-  
(9CI) (CA INDEX NAME)



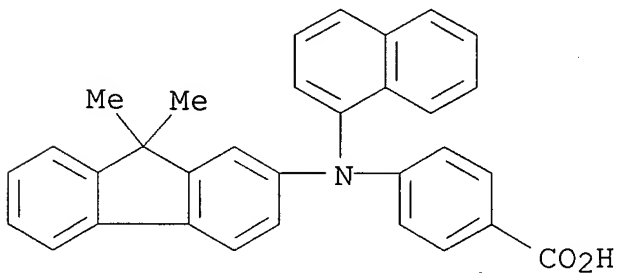
RN 648908-11-6 CAPLUS

CN Benzoic acid, 4-[(9,9-dimethyl-9H-fluoren-2-yl)phenylamino]- (9CI)  
(CA INDEX NAME)



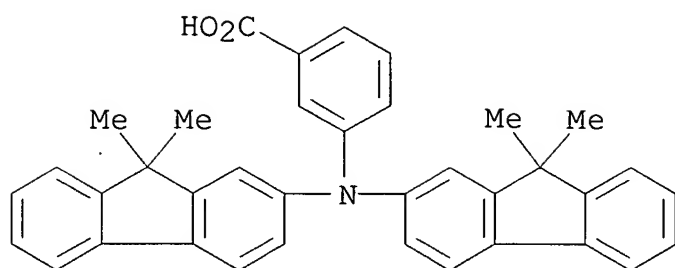
RN 648908-13-8 CAPLUS

CN Benzoic acid, 4-[(9,9-dimethyl-9H-fluoren-2-yl)-1-naphthalenylamino]- (9CI) (CA INDEX NAME)



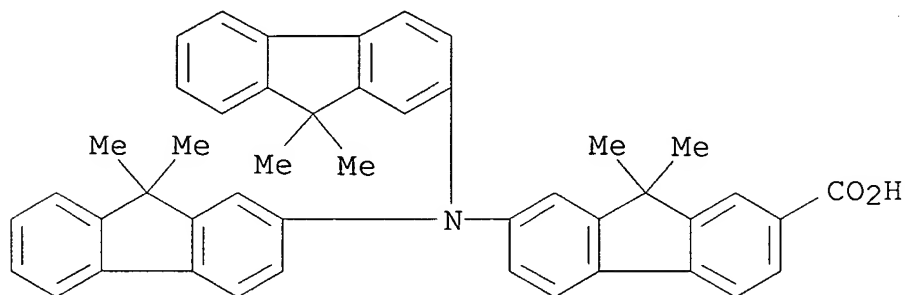
RN 648908-15-0 CAPLUS

CN Benzoic acid, 3-[bis(9,9-dimethyl-9H-fluoren-2-yl)amino]- (9CI)  
(CA INDEX NAME)



RN 648908-21-8 CAPLUS

CN 9H-Fluorene-2-carboxylic acid, 7-[bis(9,9-dimethyl-9H-fluoren-2-yl)amino]-9,9-dimethyl- (9CI) (CA INDEX NAME)



IC ICM C07C229-60

ICS C07C227-18; C07C229-68; C09K011-06; H05B033-14; H05B033-22

CC 73-11 (Optical, Electron, and Mass Spectroscopy and Other Related Properties)

Section cross-reference(s):: 25

IT Luminescent substances

(electroluminescent; heat-resistant amorphous polyphenol derivs. suitable for solution casting for manufacture of organic electroluminescent devices)

IT 648908-10-5P 648908-12-7P 648908-14-9P

648908-16-1P 648908-17-2P 648908-18-3P

648908-19-4P 648908-20-7P 648908-22-9P

648908-23-0P

(heat-resistant amorphous polyphenol derivs. suitable for solution casting for manufacture of organic electroluminescent devices)

IT 648908-09-2P

(heat-resistant amorphous polyphenol derivs. suitable for solution casting for manufacture of organic electroluminescent devices)

IT 5798-75-4, Ethyl 4-bromobenzoate 27955-94-8,  
1,1,1-Tris(4-hydroxyphenyl)ethane 110726-28-8

500717-23-7 648908-11-6 648908-13-8

648908-15-0 648908-21-8

(heat-resistant amorphous polyphenol derivs. suitable for solution casting for manufacture of organic electroluminescent devices)

L40 ANSWER 28 OF 65 CAPLUS COPYRIGHT 2005 ACS on STN

ACCESSION NUMBER: 2004:20777 CAPLUS

DOCUMENT NUMBER: 140:50071

TITLE: Organic electroluminescent device or display  
using styryl compoundINVENTOR(S): Ishibashi, Tadashi; Ichimura, Mari; Tamura,  
Shinichiro; Ueda, Naoyuki

PATENT ASSIGNEE(S): Sony Corporation, Japan

SOURCE: PCT Int. Appl., 142 pp.

CODEN: PIXXD2

DOCUMENT TYPE: Patent

LANGUAGE: Japanese

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
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WO 2004003104	A1	20040108	WO 2003-JP8043	2003 0625
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W: CN, KR, SG, US

RW: AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR,  
HU, IE, IT, LU, MC, NL, PT, RO, SE, SI, SK, TR

JP 2004087463	A2	20040318	JP 2003-165852	2003 0611
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PRIORITY APPLN. INFO.:	JP 2002-185675	A	2002 0626
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JP 2003-165852	A	2003 0611
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OTHER SOURCE(S): MARPAT 140:50071

AB The invention refers to an organic electroluminescent element comprising a glass plate, a cathode, a hole transport layer, a luminescent layer, an electron transport layer and an anode, wherein the luminescent layer is comprised of a mixture of at least one styryl compound YCH:CHX [Y = aminophenyl; X = cyano- or methyl-substituted Ph or aryl] and a charge transport material.

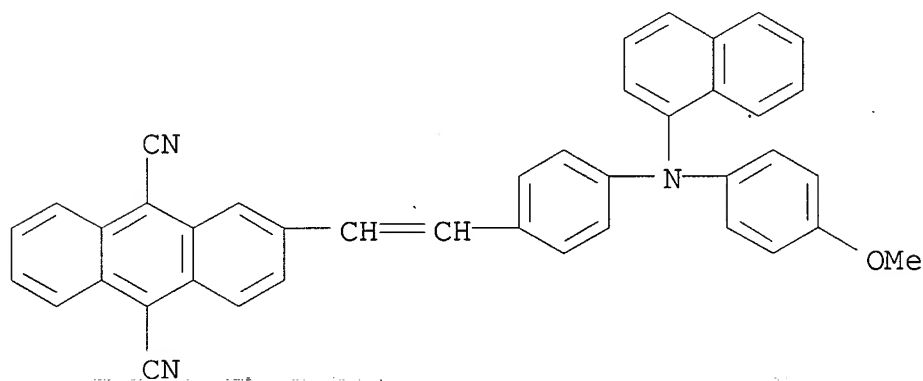
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445256-82-6 445256-83-7 445256-86-0  
637033-40-0 637033-41-1 637033-42-2  
637033-43-3 637033-44-4 637033-45-5  
637033-46-6 637033-47-7 637033-48-8  
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637033-76-2 637033-81-9 637033-82-0  
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637033-89-7 637033-90-0

(organic electroluminescent device or display with styryl compound)

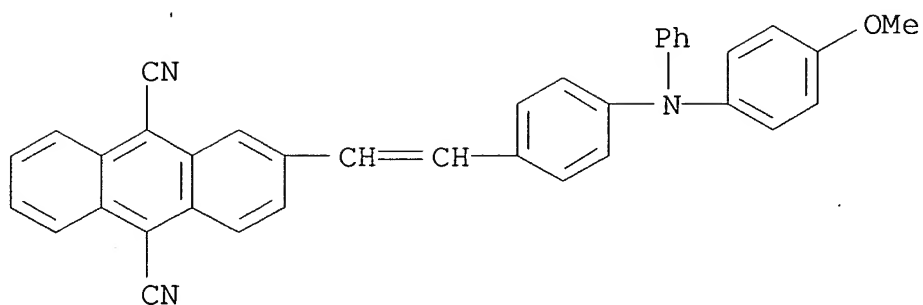
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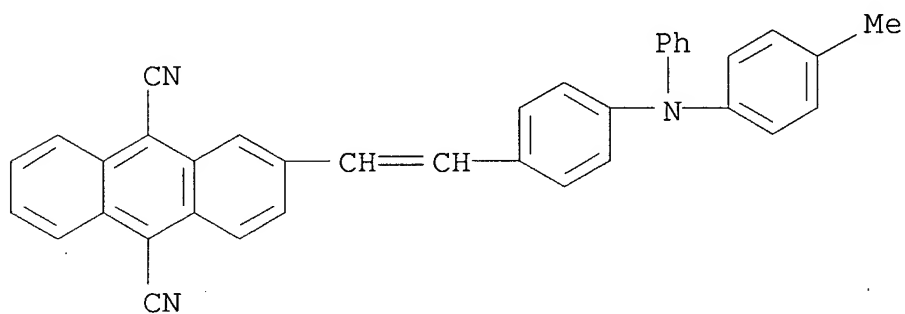
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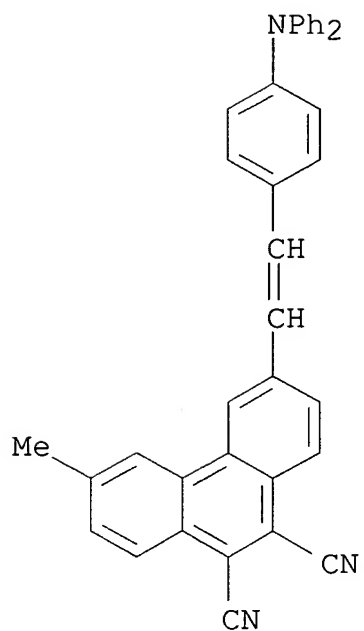
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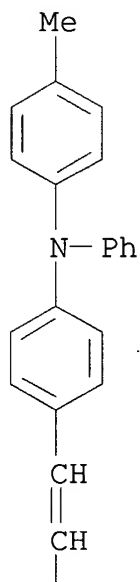


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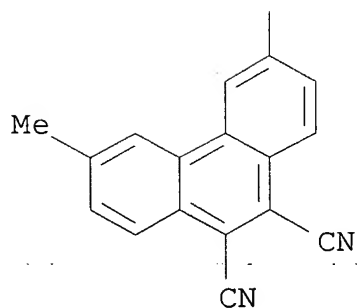
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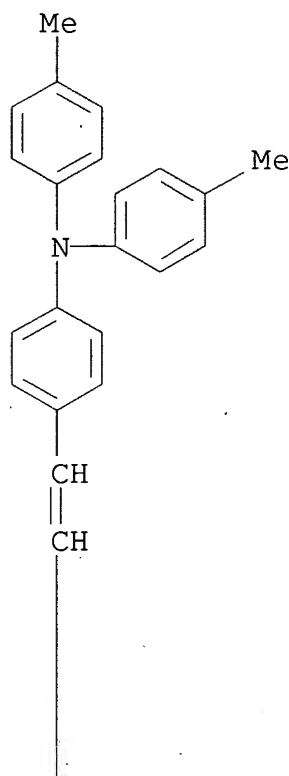


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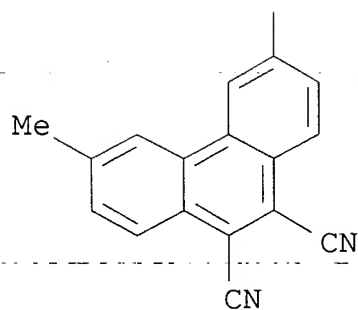


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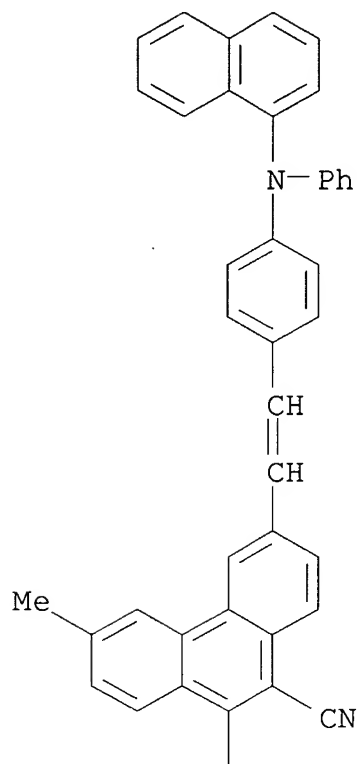


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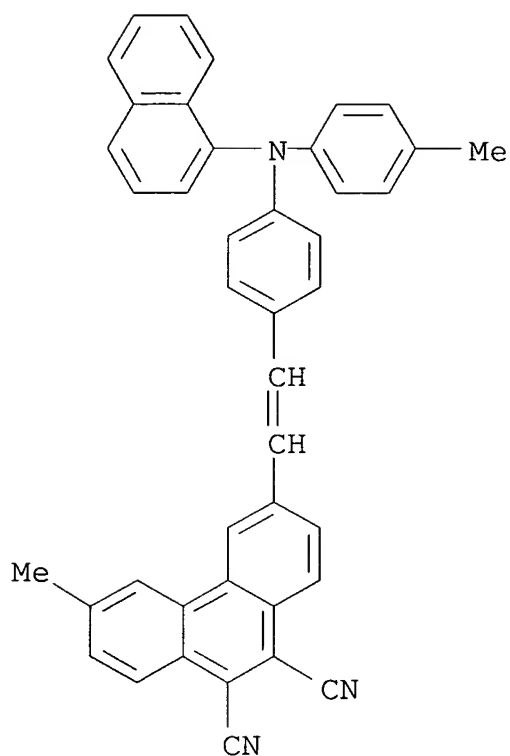
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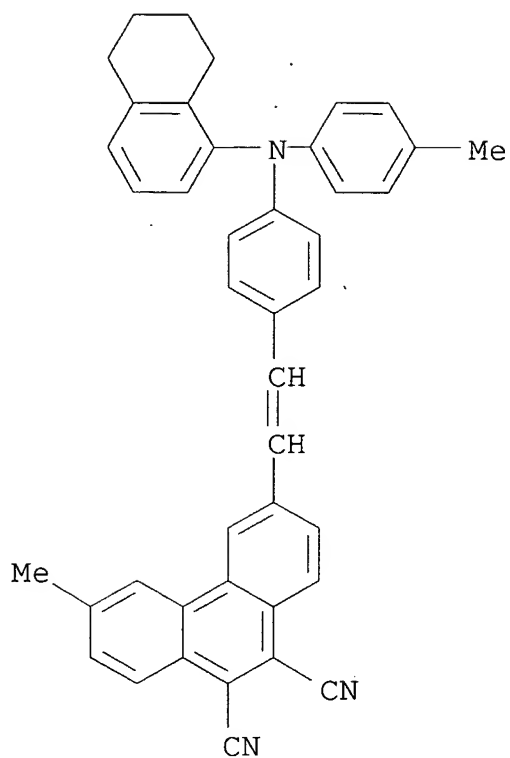
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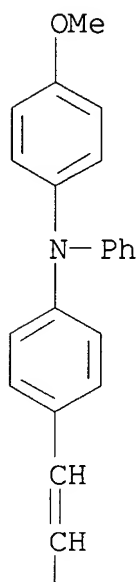
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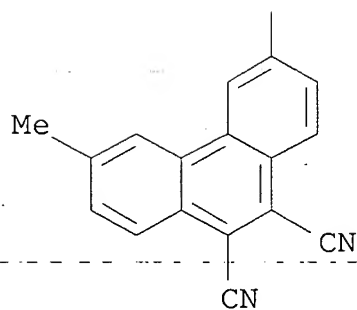
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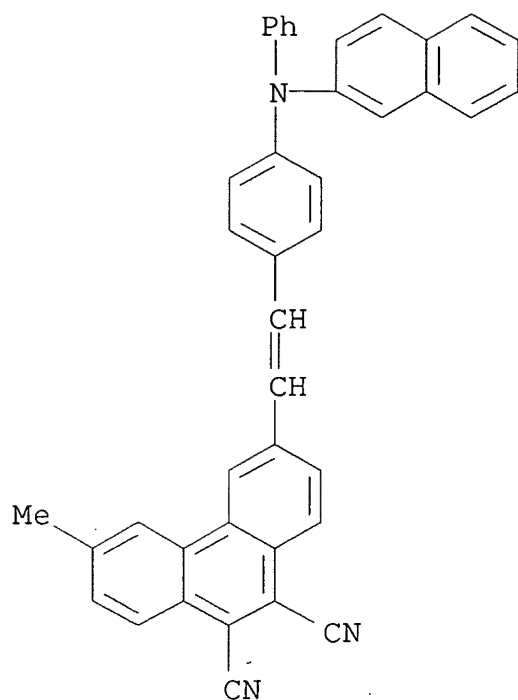
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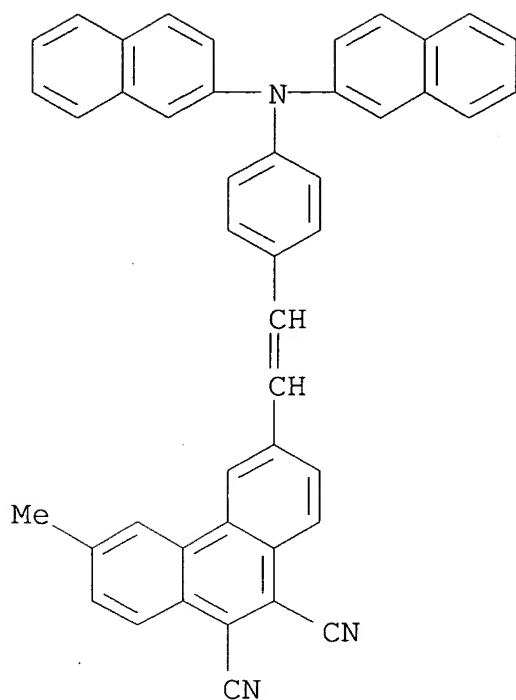


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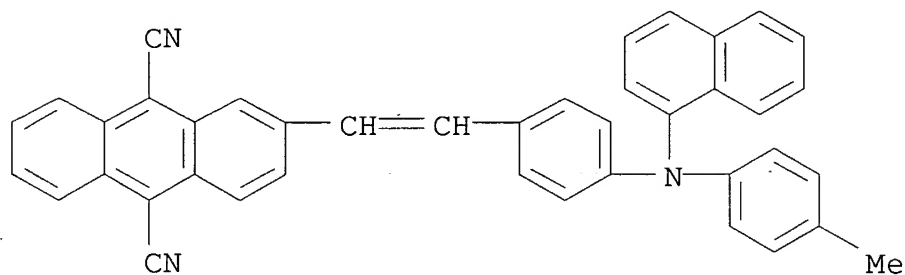
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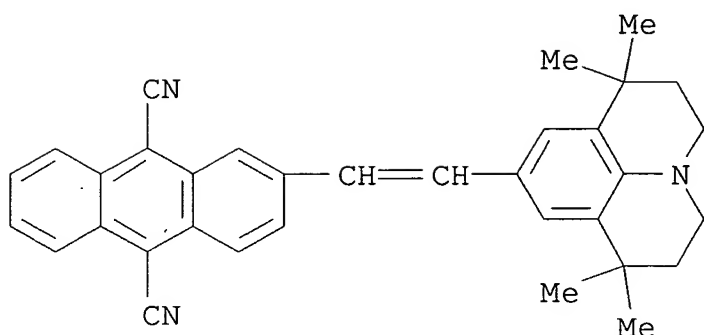
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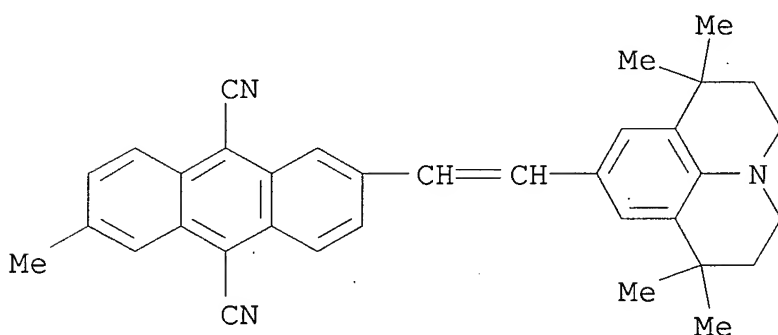
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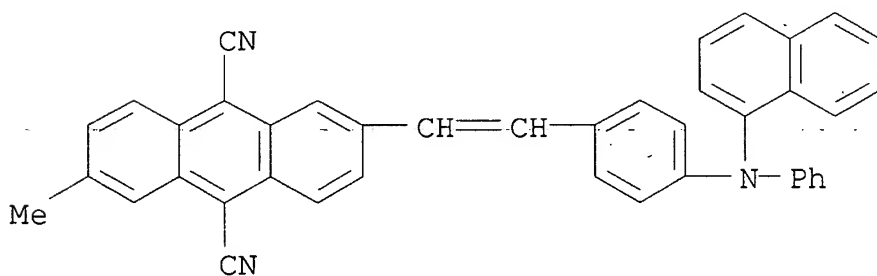
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(CA INDEX NAME)



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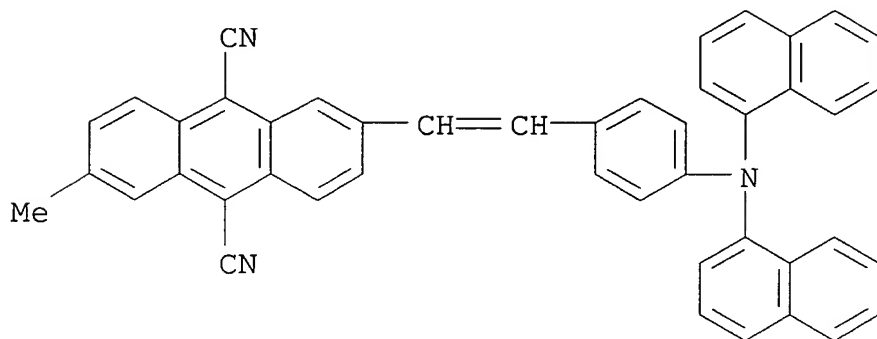
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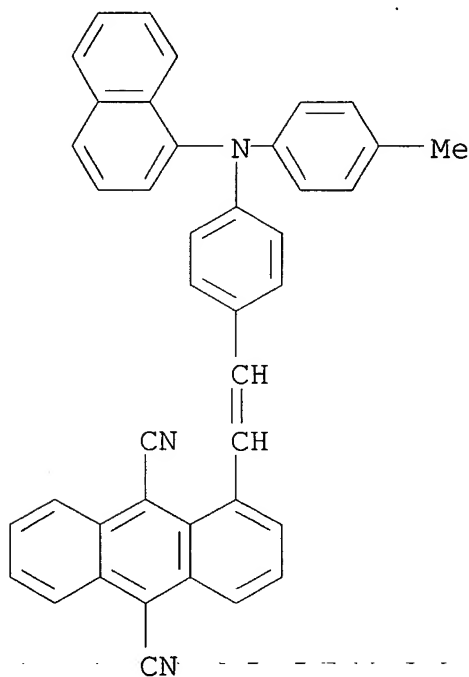
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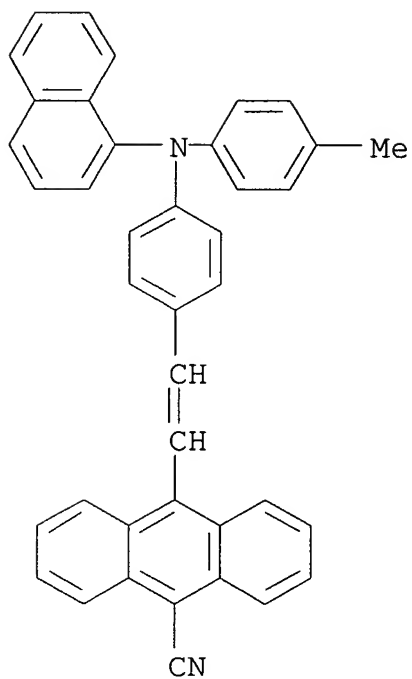
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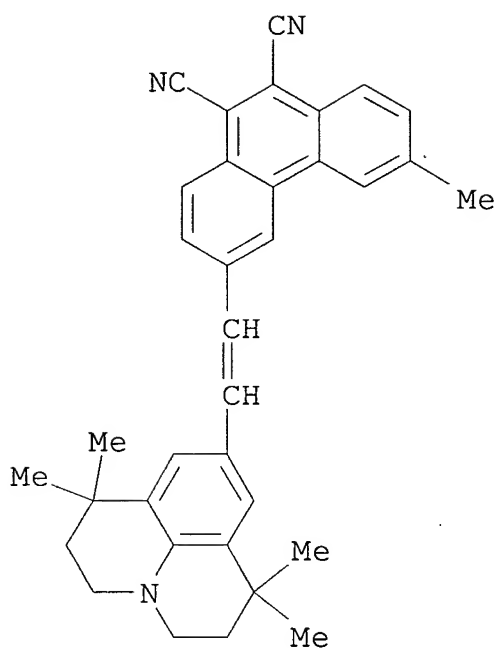
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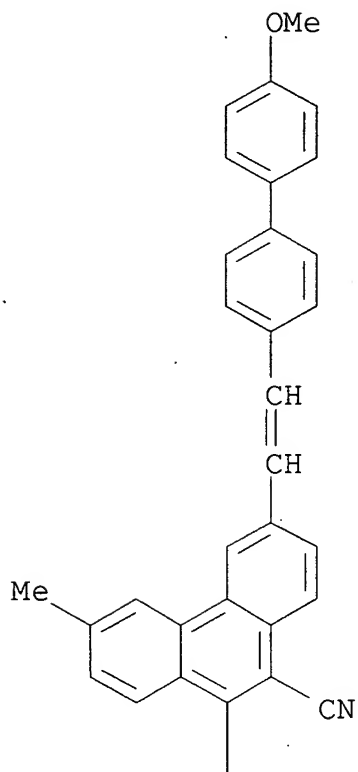
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(CA INDEX NAME)



RN 637033-48-8 CAPLUS

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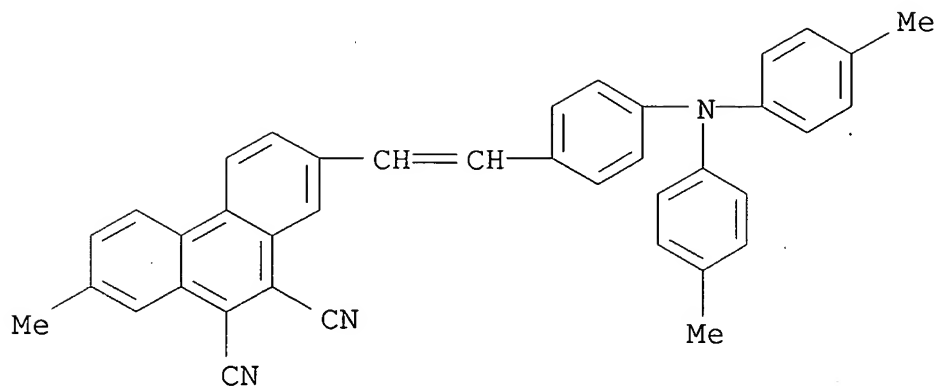


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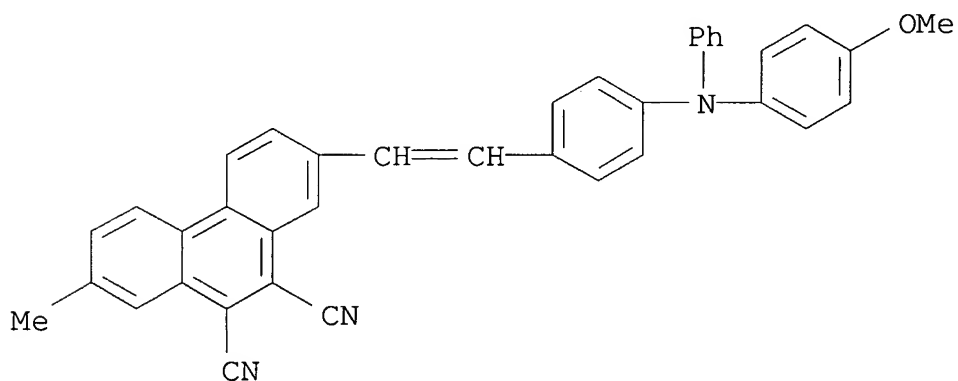
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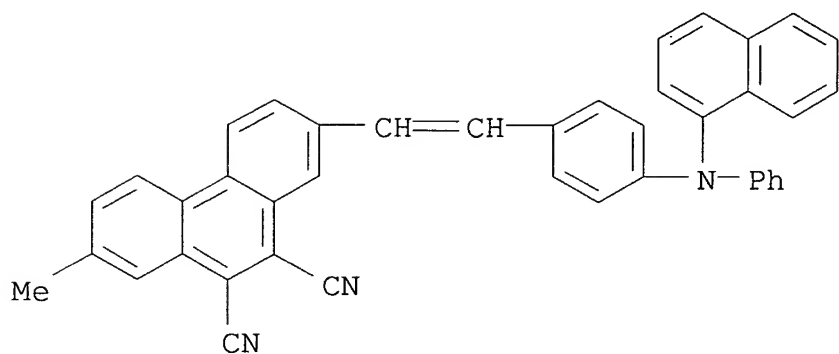
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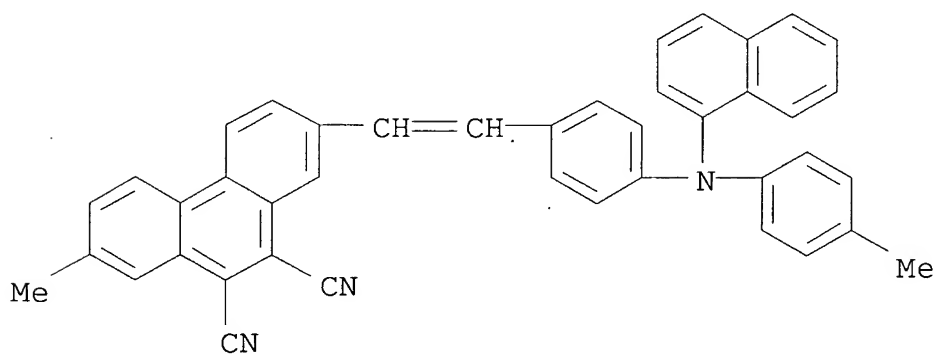
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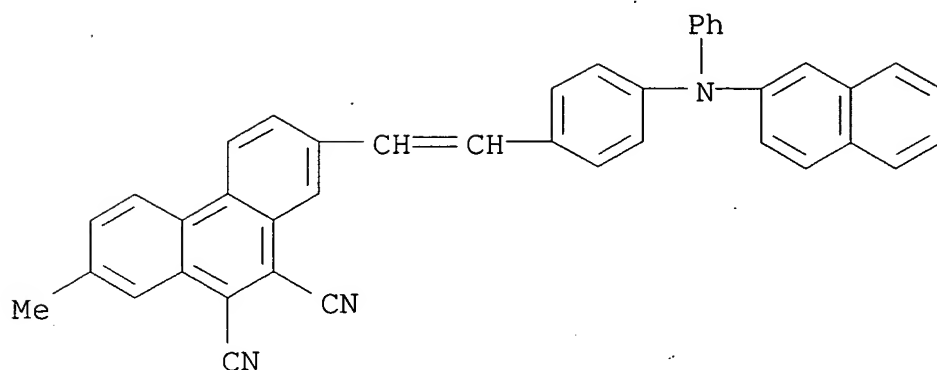
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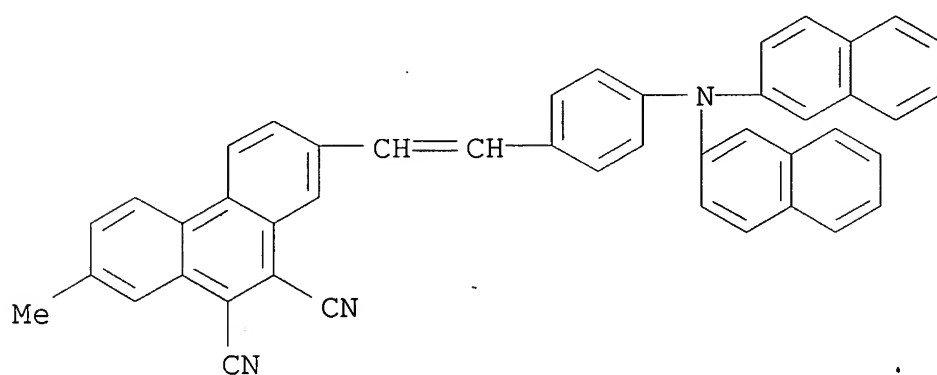
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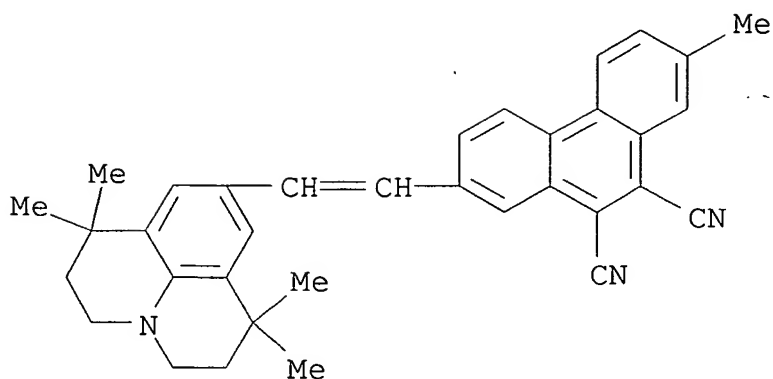
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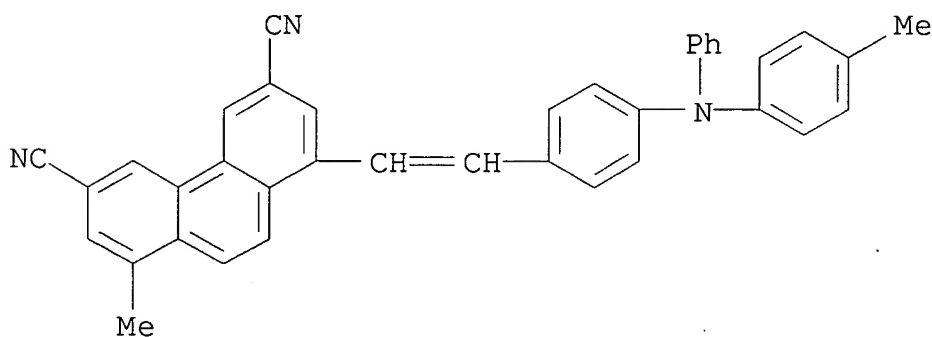
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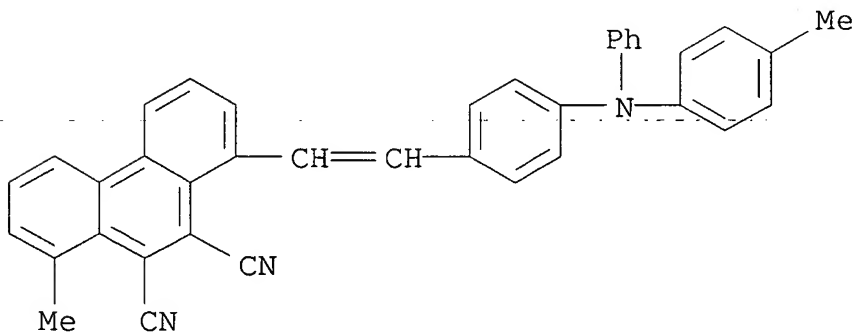
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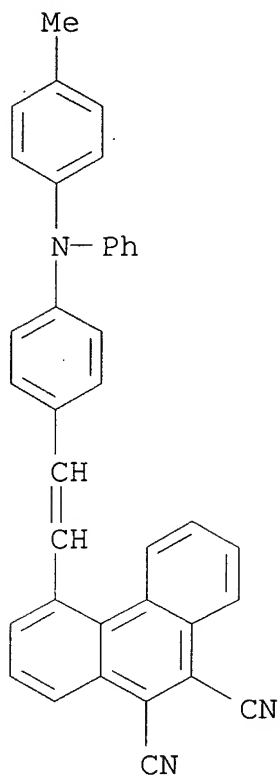
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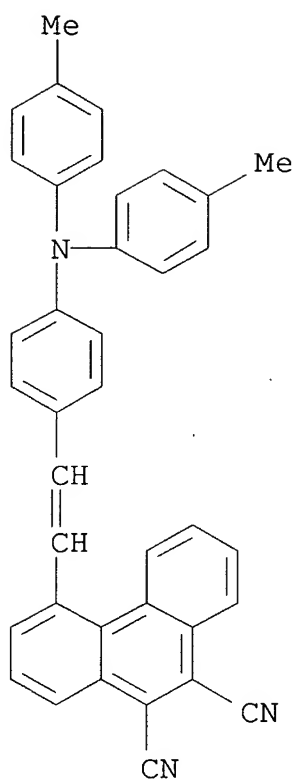
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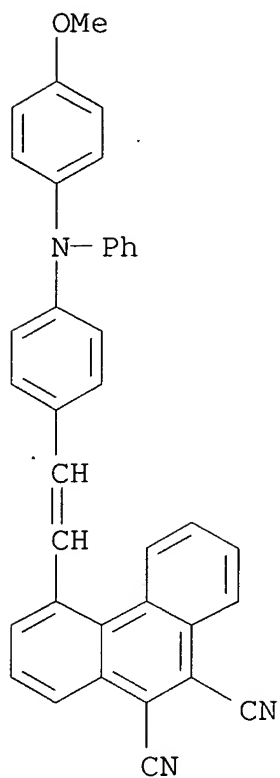
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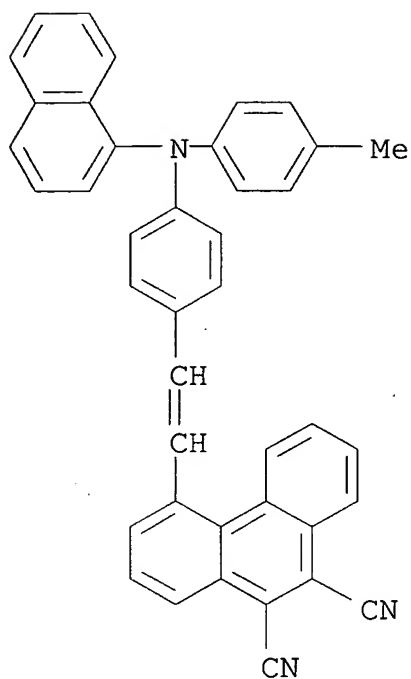
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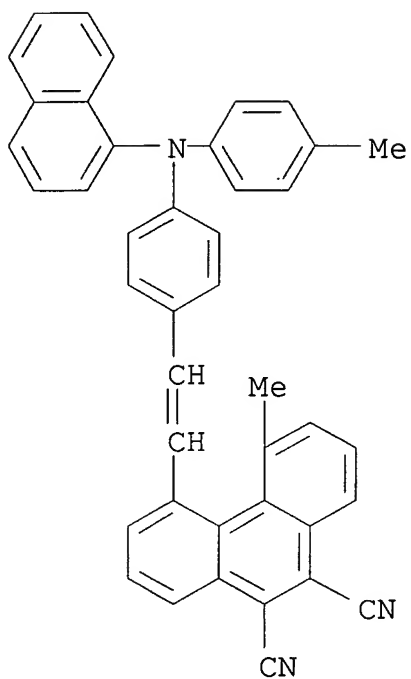
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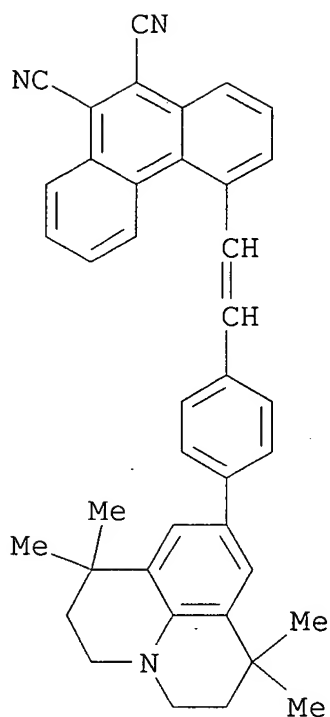


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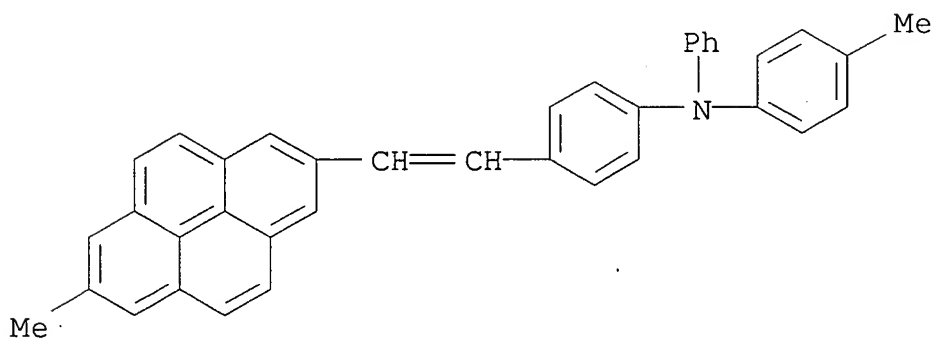


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RN 637033-66-0 CAPLUS

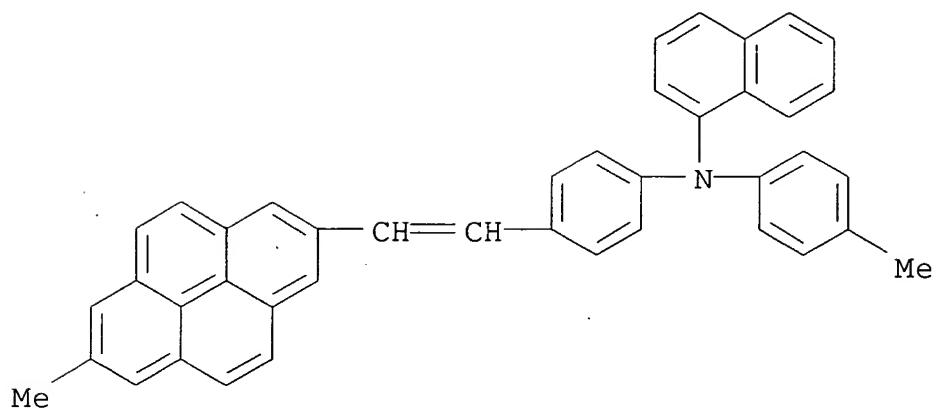
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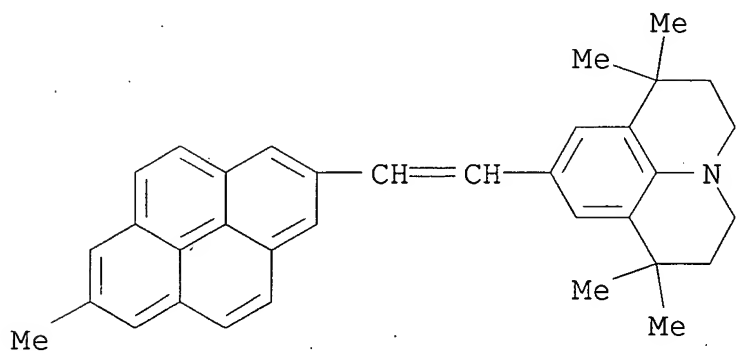
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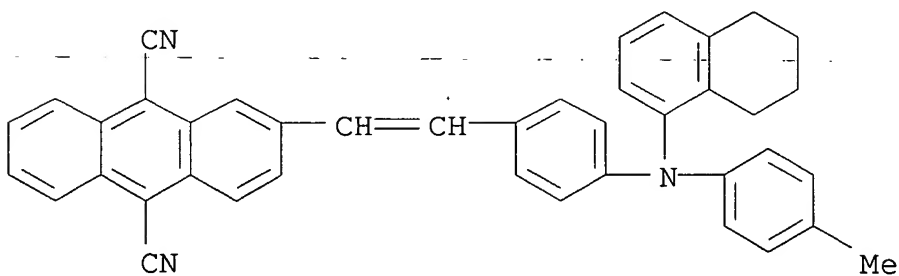
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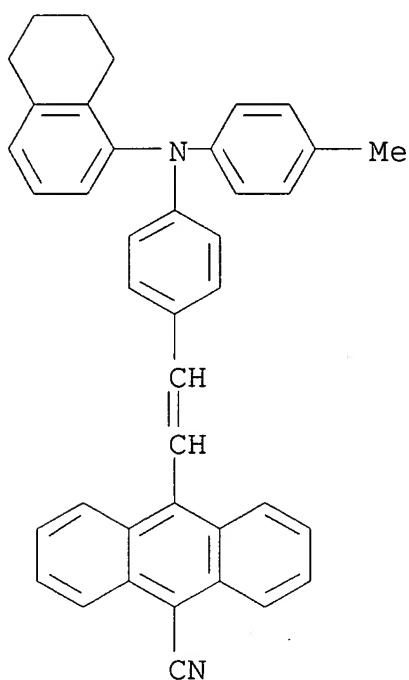


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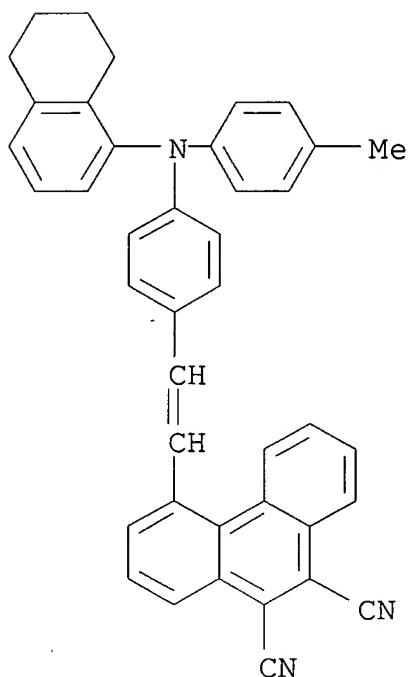
CN 9,10-Anthracenedicarbonitrile, 2-[2-[4-[(4-methylphenyl) (5,6,7,8-tetrahydro-1-naphthalenyl)amino]phenyl]ethenyl]- (9CI) (CA INDEX NAME)



RN 637033-72-8 CAPLUS  
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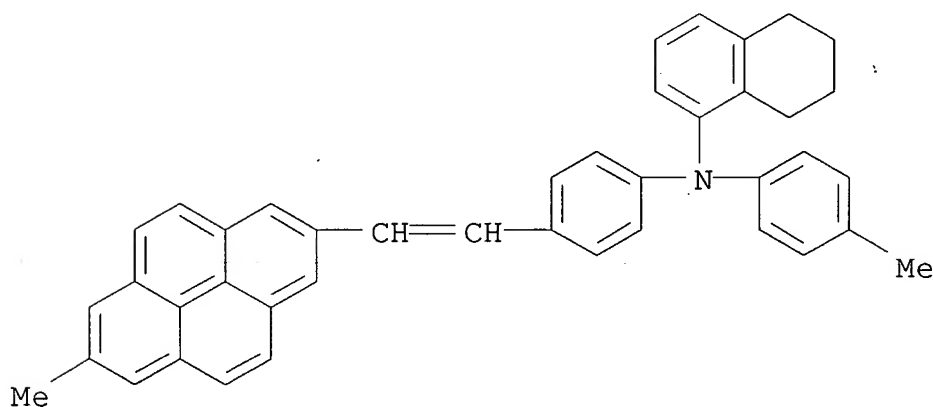


CN 9,10-Phenanthrenedicarbonitrile, 4-[2-[4-[(4-methylphenyl) (5,6,7,8-tetrahydro-1-naphthalenyl)amino]phenyl]ethenyl]- (9CI) (CA INDEX NAME)



RN 637033-76-2 CAPLUS

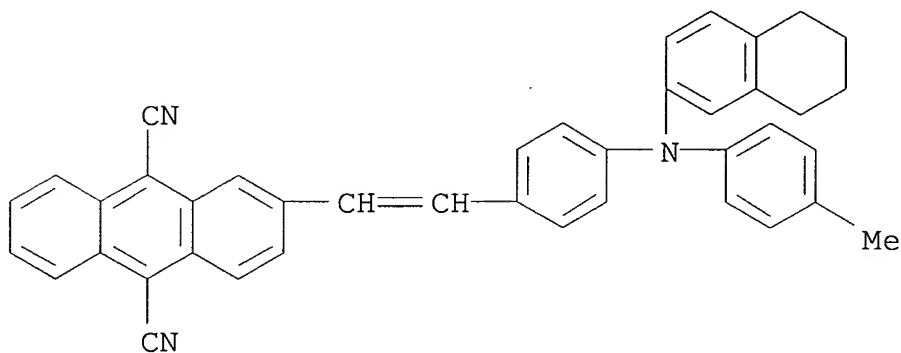
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RN 637033-81-9 CAPLUS

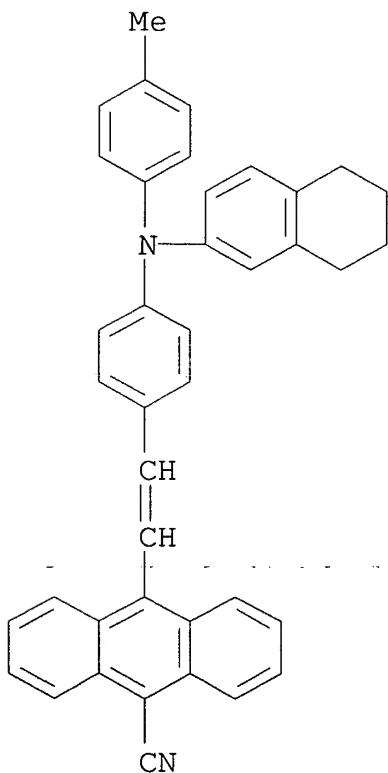
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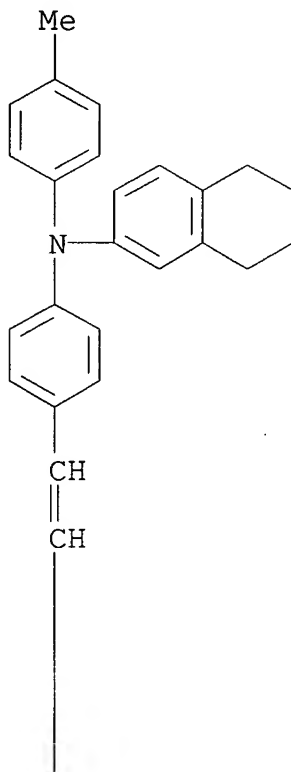
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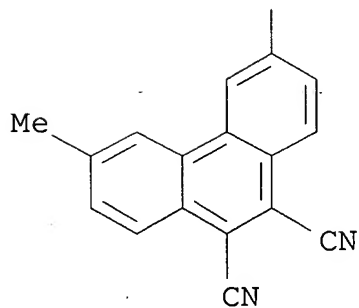


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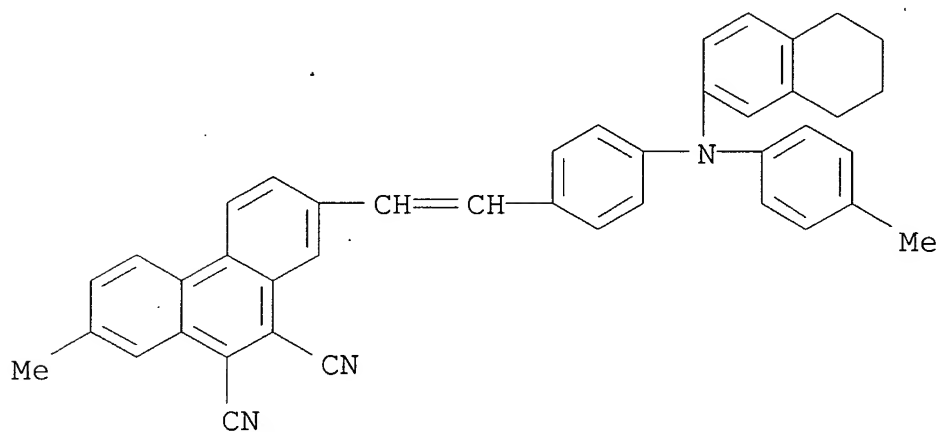
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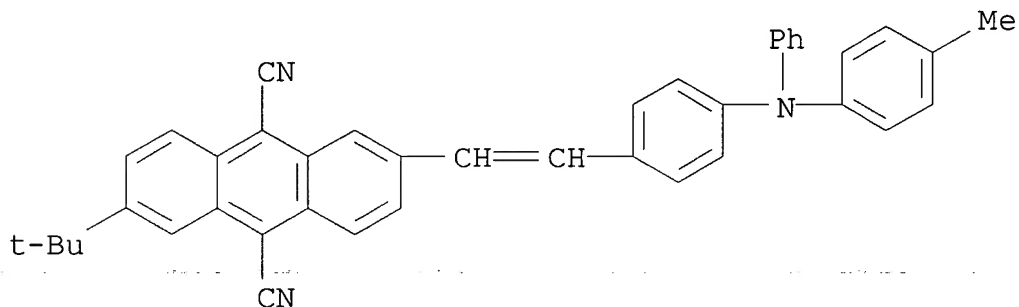
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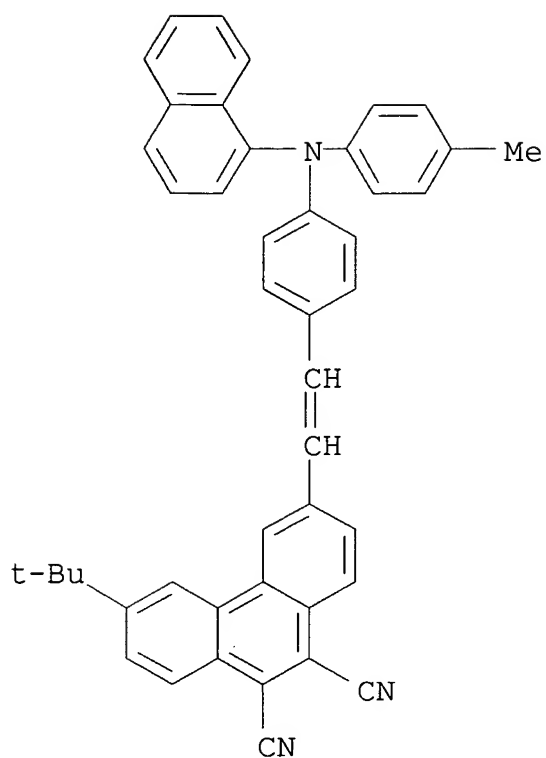
RN 637033-84-2 CAPLUS  
 CN 9,10-Phenanthrenedicarbonitrile, 2-methyl-7-[2-[4-[(4-methylphenyl)(5,6,7,8-tetrahydro-2-naphthalenyl)amino]phenyl]ethenyl]- (9CI) (CA INDEX NAME)



RN 637033-88-6 CAPLUS  
 CN 9,10-Anthracenedicarbonitrile, 2-(1,1-dimethylethyl)-6-[2-[4-[(4-methylphenyl)phenylamino]phenyl]ethenyl]- (9CI) (CA INDEX NAME)

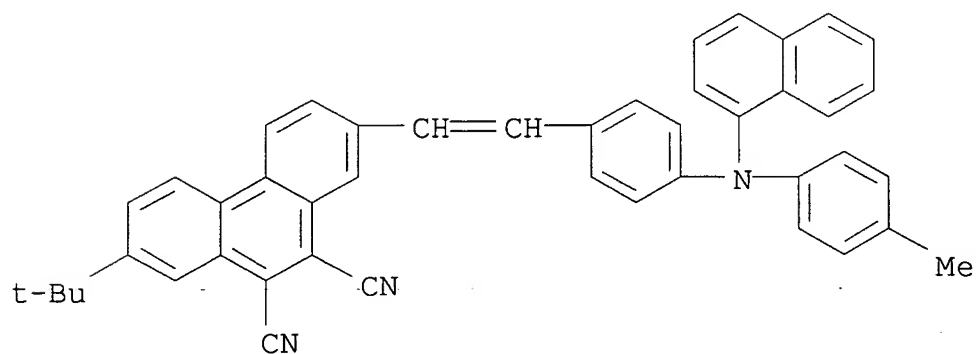


RN 637033-89-7 CAPLUS  
 CN 9,10-Phenanthrenedicarbonitrile, 3-(1,1-dimethylethyl)-6-[2-[4-[(4-methylphenyl)-1-naphthalenylamino]phenyl]ethenyl]- (9CI) (CA INDEX NAME)



RN 637033-90-0 CAPLUS

CN 9,10-Phenanthrenedicarbonitrile, 2-(1,1-dimethylethyl)-7-[2-[4-[(4-methylphenyl)-1-naphthalenylamino]phenyl]ethenyl]- (9CI) (CA INDEX NAME)



IC ICM C09K011-06

ICS H05B033-14

CC 73-11 (Optical, Electron, and Mass Spectroscopy and Other Related Properties)

IT Luminescent screens  
(electroluminescent; organic electroluminescent device or display  
with styryl compound)

IT 321735-50-6 321735-63-1 366793-10-4  
366793-12-6 422510-78-9 445256-73-5  
445256-74-6 445256-76-8 445256-77-9  
445256-78-0 445256-81-5 445256-82-6  
445256-83-7 445256-86-0 637033-22-8  
637033-24-0 637033-26-2 637033-28-4 637033-29-5  
637033-30-8 637033-31-9 637033-32-0 637033-33-1  
637033-34-2 637033-35-3 637033-36-4 637033-37-5  
637033-38-6 637033-40-0 637033-41-1  
637033-42-2 637033-43-3 637033-44-4  
637033-45-5 637033-46-6 637033-47-7  
637033-48-8 637033-49-9 637033-50-2  
637033-51-3 637033-52-4 637033-53-5  
637033-54-6 637033-55-7 637033-56-8  
637033-57-9 637033-58-0 637033-59-1  
637033-60-4 637033-61-5 637033-62-6  
637033-63-7 637033-64-8 637033-65-9  
637033-66-0 637033-67-1 637033-68-2  
637033-69-3 637033-70-6 637033-71-7  
637033-72-8 637033-73-9 637033-74-0  
637033-76-2 637033-77-3 637033-78-4 637033-79-5  
637033-80-8 637033-81-9 637033-82-0  
637033-83-1 637033-84-2 637033-85-3  
637033-86-4 637033-87-5 637033-88-6  
637033-89-7 637033-90-0  
(organic electroluminescent device or display with styryl compound)

REFERENCE COUNT: 4 THERE ARE 4 CITED REFERENCES AVAILABLE  
FOR THIS RECORD. ALL CITATIONS AVAILABLE  
IN THE RE FORMAT

L40 ANSWER 29 OF 65 CAPLUS COPYRIGHT 2005 ACS on STN

ACCESSION NUMBER: 2003:888849 CAPLUS

DOCUMENT NUMBER: 140:101329

TITLE: Benzo[a]aceanthrylene Derivatives for  
Red-Emitting Electroluminescent Materials

AUTHOR(S): Huang, Tai-Hsiang; Lin, Jiann T.; Tao, Yu-Tai;  
Chuen, Chang-Hao

CORPORATE SOURCE: Institute of Chemistry, Academia Sinica,  
Taipei, Taiwan

SOURCE: Chemistry of Materials (2003), 15(25),  
4854-4862

CODEN: CMATEX; ISSN: 0897-4756

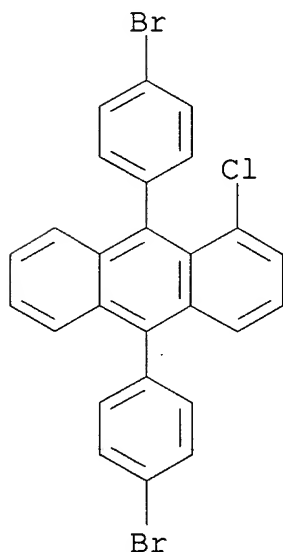
PUBLISHER: American Chemical Society

DOCUMENT TYPE: Journal

LANGUAGE: English



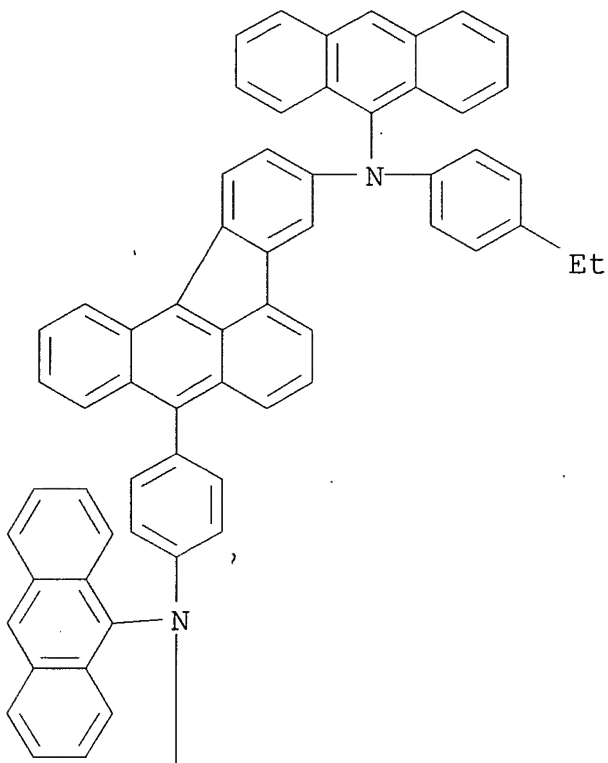
- AB Benzo[a]aceanthrylene-cored compds. (acen) encapsulated with two peripheral arylamines have been synthesized from 1-chloroanthraquinone by the method of Dehaen, palladium-catalyzed aromatic C-N coupling reactions, and cyclization of diphenylanthracene. These compds. have high thermal stability, and they readily form glass with high glass-transition temps. The emission colors of the compds. vary from orange to red. Two quasi-reversible one-electron oxidation waves were observed for the two peripheral amines which are in different chemical environments. The new materials can be deposited as a pure thin film. Pure red-emitting devices were fabricated using acen as both hole-transporting and emitting materials and 1,3,5-tris(N-phenylbenzimidazol-2-yl)benzene (TPBI) as the electron-transporting materials, or using Alq3 (tris(8-hydroxyquinoline)aluminum) as the electron-transporting materials interposing a hole-blocking BCP layer between acen and Alq3.
- IT **642473-64-1P**, 9,10-Bis(4-bromophenyl)-1-chloroanthracene (amine coupling/cyclization; benzo[a]aceanthrylene derivs. for red-emitting electroluminescent materials)
- RN 642473-64-1 CAPLUS
- CN Anthracene, 9,10-bis(4-bromophenyl)-1-chloro- (9CI) (CA INDEX NAME)



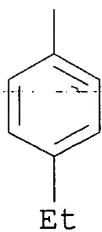
- IT **642473-72-1P**  
(benzo[a]aceanthrylene derivs. for red-emitting electroluminescent materials)

RN 642473-72-1 CAPLUS  
CN Benz[a]aceanthrylen-3-amine, N-9-anthracenyl-8-[4-[9-anthracenyl(4-ethylphenyl)amino]phenyl]-N-(4-ethylphenyl)- (9CI) (CA INDEX NAME)

PAGE 1-A



PAGE 2-A

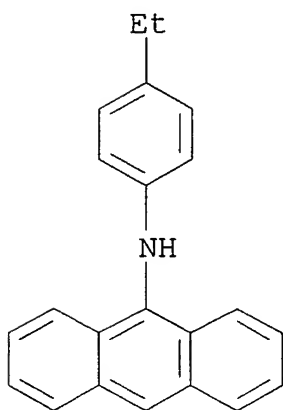


IT 642473-67-4, (9-Anthracenyl) (4-ethylphenyl) amine  
(coupling to 9,10-bis(4-bromophenyl)-1-chloroanthracene;

benzo[a]aceanthrylene derivs. for red-emitting  
electroluminescent materials)

RN 642473-67-4 CAPLUS

CN 9-Anthracenamine, N-(4-ethylphenyl)- (9CI) (CA INDEX NAME)



CC 73-5 (**Optical**, Electron, and Mass Spectroscopy and Other  
Related Properties)

Section cross-reference(s): 22, 25, 72, 76

IT Cyclic voltammetry

Electric current-potential relationship

Electroluminescent devices

**Luminescence**

**Luminescence**, electroluminescence

Oxidation, electrochemical

Reduction, electrochemical

UV and visible spectra

(benzo[a]aceanthrylene derivs. for red-emitting  
electroluminescent materials)

IT **Luminescent** substances

(electroluminescent; benzo[a]aceanthrylene derivs. for  
red-emitting electroluminescent materials)

IT **642473-64-1P**, 9,10-Bis(4-bromophenyl)-1-chloroanthracene  
(amine coupling/cyclization; benzo[a]aceanthrylene derivs. for  
red-emitting electroluminescent materials)

IT 642473-68-5P 642473-69-6P 642473-70-9P 642473-71-0P  
**642473-72-1P**

(benzo[a]aceanthrylene derivs. for red-emitting  
electroluminescent materials)

IT 86-74-8, Carbazole 90-30-2, 1-Naphthylphenylamine 122-39-4,  
Diphenylamine, reactions 642473-66-3, 4-tert-Butyl-4'-  
ethyldiphenylamine **642473-67-4**, (9-Anthracenyl)(4-  
ethylphenyl)amine

(coupling to 9,10-bis(4-bromophenyl)-1-chloroanthracene;

benzo[a]aceanthrylene derivs. for red-emitting  
electroluminescent materials)

IT 4733-39-5, Bathocuproine  
(hole-blocking layer; benzo[a]aceanthrylene derivs.  
for red-emitting electroluminescent materials)

REFERENCE COUNT: 61 THERE ARE 61 CITED REFERENCES AVAILABLE  
FOR THIS RECORD. ALL CITATIONS AVAILABLE  
IN THE RE FORMAT

L40 ANSWER 30 OF 65 CAPLUS COPYRIGHT 2005 ACS on STN

ACCESSION NUMBER: 2003:874842 CAPLUS

DOCUMENT NUMBER: 139:371628

TITLE: Luminescent devices employing a  
triarylamine compound

INVENTOR(S): Senoo, Akihiro; Hashimoto, Yuichi; Ueno,  
Kazunori; Mashimo, Seiji; Urakawa, Shinichi

PATENT ASSIGNEE(S): Canon Kabushiki Kaisha, Japan

SOURCE: U.S. Pat. Appl. Publ., 37 pp., Cont.-in-part  
of U.S. Ser. No. 299,632.

CODEN: USXXCO

DOCUMENT TYPE: Patent

LANGUAGE: English

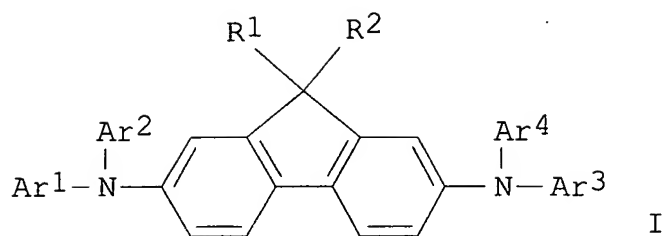
FAMILY ACC. NUM. COUNT: 2

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
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US 2003207153	A1	20031106	US 2003-348990	2003 0123
US 6833200	B2	20041221		
PRIORITY APPLN. INFO.:			JP 1998-132636	A 1998 0428
			US 1999-299632	B2 1999 0427

OTHER SOURCE(S): MARPAT 139:371628

GI



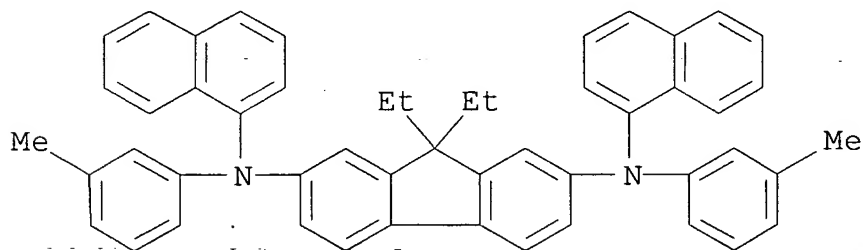
AB **Luminescent** devices are described which comprise a pair of electrodes and a **luminescent layer** disposed between the electrodes and comprising a compound represented by the general formula (I) where R1 and R2 are each independently a H atom, a halogen atom, a substituted or unsubstituted alkyl group, a substituted or unsubstituted alkoxy group, or a substituted or unsubstituted aryl group; Ar1-4 are each a substituted or unsubstituted aryl or heterocyclic group, which may be the same or different from each other; both Ar1 and Ar3 are fused aromatic rings;  $\geq 1$  of R1 and R2 is a halogen, a substituted or unsubstituted alkyl group, or a substituted or unsubstituted alkoxy group; and  $\geq 1$  of R1 and R2 is not H.

IT 145068-95-7 222319-05-3 248584-67-0  
248584-69-2 248584-70-5 248584-71-6  
248584-72-7

(electroluminescent devices employing triarylamine compound)

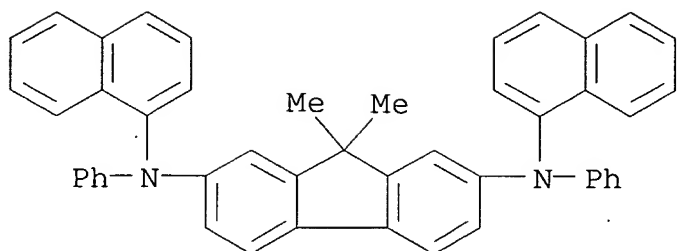
RN 145068-95-7 CAPLUS

CN 9H-Fluorene-2,7-diamine, 9,9-diethyl-N,N'-bis(3-methylphenyl)-N,N'-di-1-naphthalenyl- (9CI) (CA INDEX NAME)



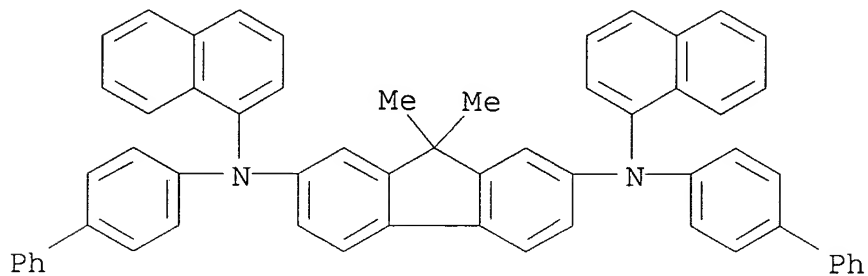
RN 222319-05-3 CAPLUS

CN 9H-Fluorene-2,7-diamine, 9,9-dimethyl-N,N'-di-1-naphthalenyl-N,N'-diphenyl- (9CI) (CA INDEX NAME)



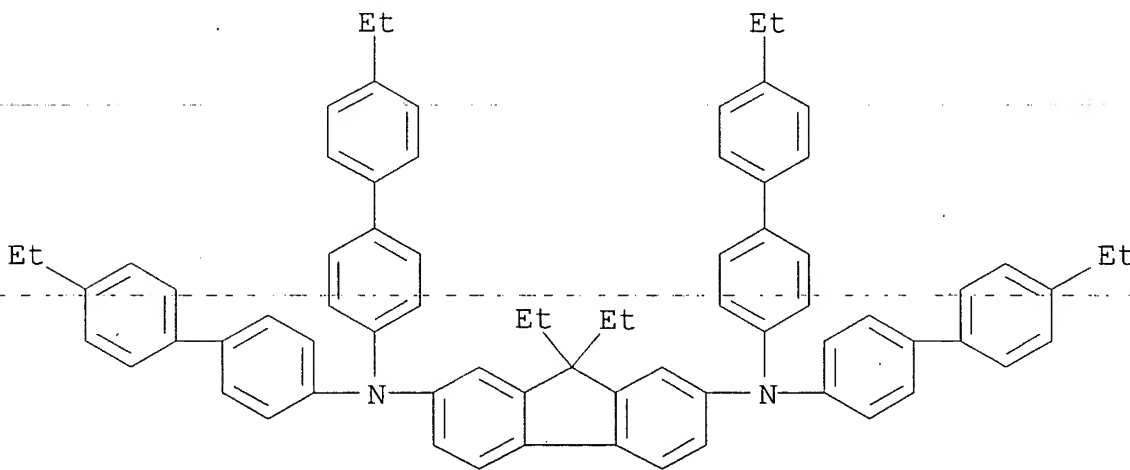
RN 248584-67-0 CAPLUS

CN 9H-Fluorene-2,7-diamine, N,N'-bis([1,1'-biphenyl]-4-yl)-9,9-dimethyl-N,N'-di-1-naphthalenyl- (9CI) (CA INDEX NAME)



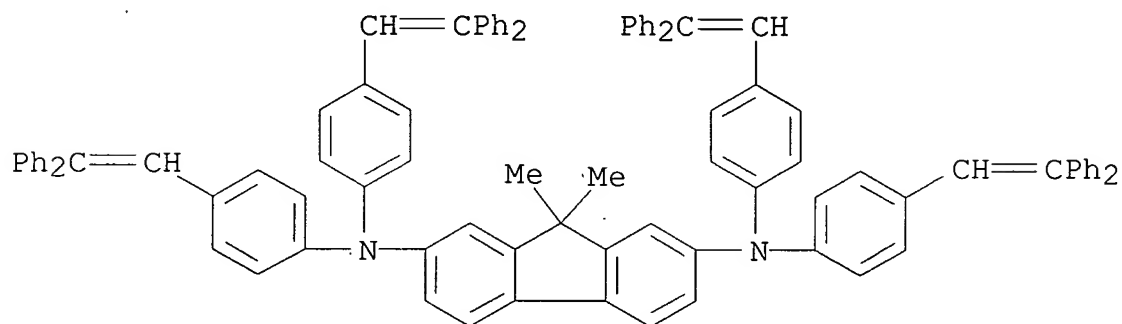
RN 248584-69-2 CAPLUS

CN 9H-Fluorene-2,7-diamine, 9,9-diethyl-N,N,N',N'-tetrakis(4'-ethyl[1,1'-biphenyl]-4-yl)- (9CI) (CA INDEX NAME)



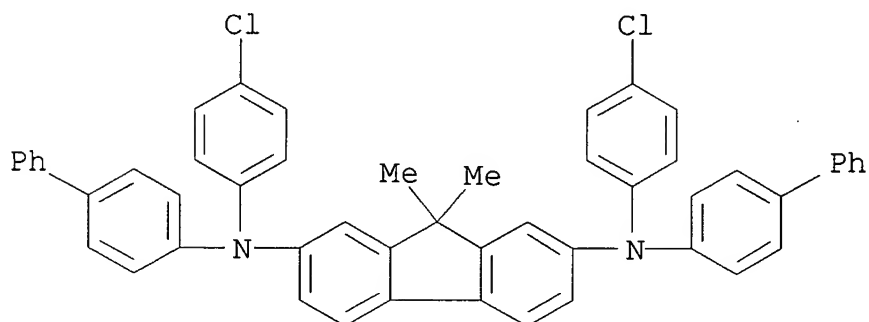
RN 248584-70-5 CAPLUS

CN 9H-Fluorene-2,7-diamine, N,N,N',N'-tetrakis[4-(2,2-diphenylethenyl)phenyl]-9,9-dimethyl- (9CI) (CA INDEX NAME)



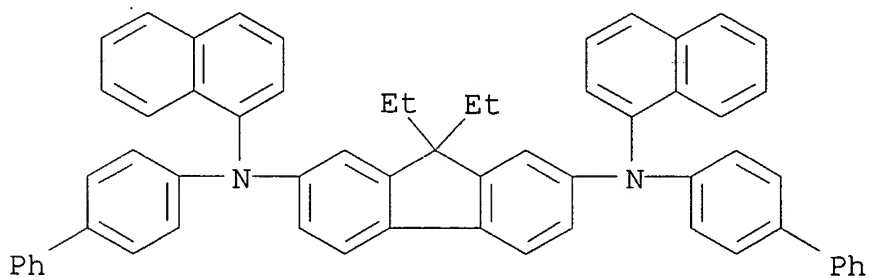
RN 248584-71-6 CAPLUS

CN 9H-Fluorene-2,7-diamine, N,N'-bis([1,1'-biphenyl]-4-yl)-N,N'-bis(4-chlorophenyl)-9,9-dimethyl- (9CI) (CA INDEX NAME)

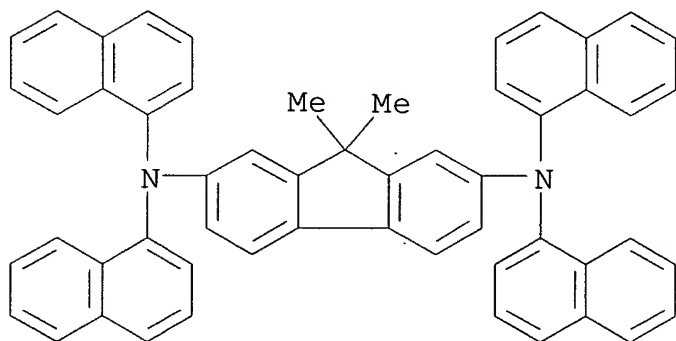


RN 248584-72-7 CAPLUS

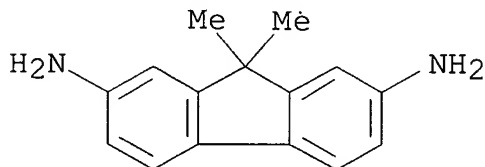
CN 9H-Fluorene-2,7-diamine, N,N'-bis([1,1'-biphenyl]-4-yl)-9,9-diethyl-N,N'-di-1-naphthalenyl- (9CI) (CA INDEX NAME)



IT 248584-66-9P  
 (electroluminescent devices employing triarylamine compound)  
 RN 248584-66-9 CAPLUS  
 CN 9H-Fluorene-2,7-diamine, 9,9-dimethyl-N,N,N',N'-tetra-1-naphthalenyl- (9CI) (CA INDEX NAME)



IT 216454-90-9  
 (electroluminescent devices employing triarylamine compound prepared using)  
 RN 216454-90-9 CAPLUS  
 CN 9H-Fluorene-2,7-diamine, 9,9-dimethyl- (9CI) (CA INDEX NAME)



IC ICM H05B033-14  
 NCL 428690000; 428917000; 313504000; 313506000  
 CC 73-11 (**Optical**, Electron, and Mass Spectroscopy and Other Related Properties)  
 Section cross-reference(s): 25, 76  
 IT 145068-95-7 222319-05-3 248584-67-0  
 248584-69-2 248584-70-5 248584-71-6  
 248584-72-7  
 (electroluminescent devices employing triarylamine compound)  
 IT 248584-66-9P  
 (electroluminescent devices employing triarylamine compound)  
 IT 90-14-2, 1-Iodonaphthalene 216454-90-9  
 (electroluminescent devices employing triarylamine compound prepared using)  
 IT 2085-33-8, Alq3



(electron-transporting **layer**; electroluminescent  
devices employing triarylamine compound)

IT 124729-98-2, MTDATA

(hole injection-transport **layer**; electroluminescent  
devices employing triarylamine compound)

L40 ANSWER 31 OF 65 CAPLUS COPYRIGHT 2005 ACS on STN

ACCESSION NUMBER: 2003:750705 CAPLUS

DOCUMENT NUMBER: 139:267732

TITLE: Organic electroluminescent devices showing  
stable and bright emission and  
arylamino phenylthiophene derivatives therefor  
INVENTOR(S): Shimamura, Takehiko; Tanabe, Yoshimitsu;  
Ishida, Tsutomu; Totani, Yoshiyuki; Nakatsuka,  
Masakatsu

PATENT ASSIGNEE(S): Mitsui Chemicals Inc., Japan

SOURCE: Jpn. Kokai Tokkyo Koho, 26 pp.

CODEN: JKXXAF

DOCUMENT TYPE: Patent

LANGUAGE: Japanese

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
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JP 2003267973	A2	20030925	JP 2002-74286	

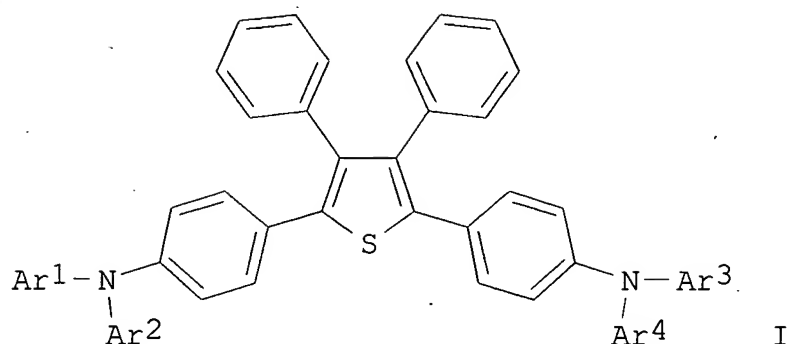
2002  
0318

PRIORITY APPLN. INFO.: JP 2002-74286

2002  
0318

OTHER SOURCE(S): MARPAT 139:267732

GI



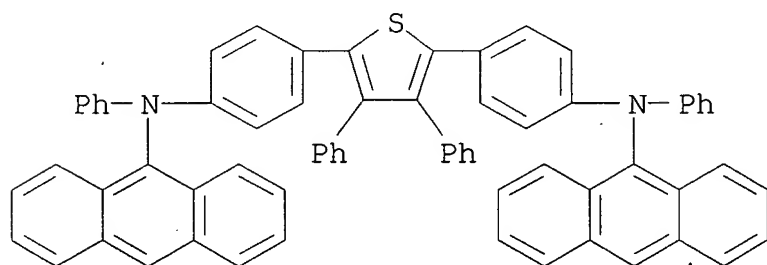
AB Arylaminothiophene derivs. I (Ar1-Ar4 = aryl where  $\geq 1$  of them is anthryl) and organic electroluminescent devices having I in hole-injecting or emission layers and exhibiting the mentioned advantages are both claimed.

IT 566915-46-6P 566915-48-8P 603132-40-7P  
603132-41-8P 603132-45-2P 603132-46-3P  
603132-48-5P 603132-50-9P 603132-51-0P  
603132-53-2P 603132-55-4P 603132-56-5P  
603132-57-6P 603132-58-7P 603132-59-8P

(novel arylaminophenylthiophene derivs. for organic electroluminescent devices showing stable and bright emission)

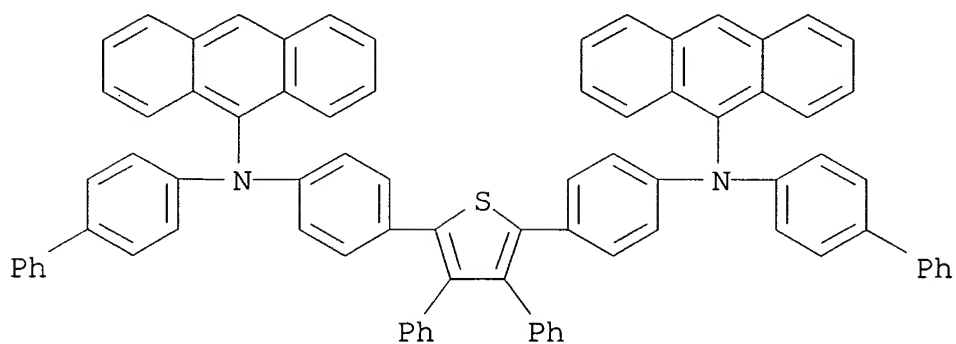
RN 566915-46-6 CAPLUS

CN 9-Anthracenamine, N,N'-[(3,4-diphenyl-2,5-thiophenediyl)di-4,1-phenylene]bis[N-phenyl- (9CI) (CA INDEX NAME)



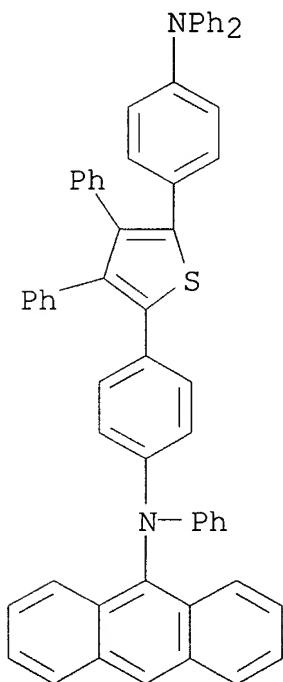
RN 566915-48-8 CAPLUS

CN 9-Anthracenamine, N,N'-[(3,4-diphenyl-2,5-thiophenediyl)di-4,1-phenylene]bis[N-[1,1'-biphenyl]-4-yl- (9CI) (CA INDEX NAME)



RN 603132-40-7 CAPLUS

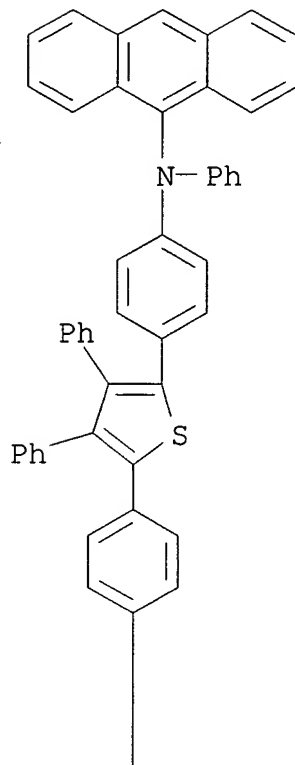
CN 9-Anthracenamine, N-[4-[5-[4-(diphenylamino)phenyl]-3,4-diphenyl-2-thienyl]phenyl]-N-phenyl- (9CI) (CA INDEX NAME)



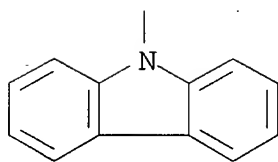
RN 603132-41-8 CAPLUS

CN 9-Anthracenamine, N-[4-[5-[4-(9H-carbazol-9-yl)phenyl]-3,4-diphenyl-2-thienyl]phenyl]-N-phenyl- (9CI) (CA INDEX NAME)

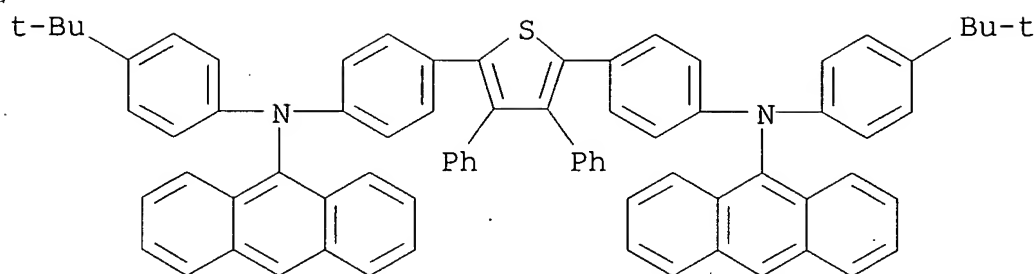
PAGE 1-A



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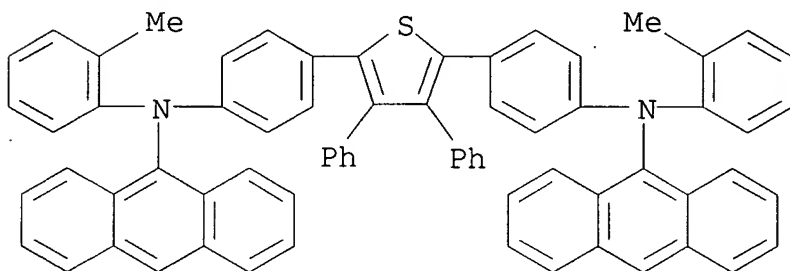


RN 603132-45-2 CAPLUS  
CN 9-Anthracenamine, N,N'-[(3,4-diphenyl-2,5-thiophenediyl)di-4,1-phenylene]bis[N-[4-(1,1-dimethylethyl)phenyl]- (9CI) (CA INDEX NAME)



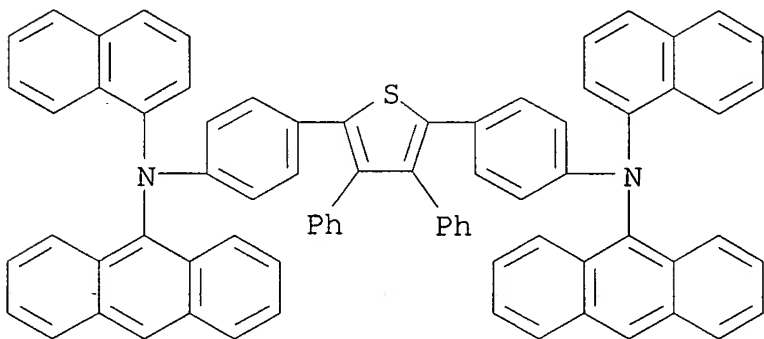
RN 603132-46-3 CAPLUS

CN 9-Anthracenamine, N,N'-[(3,4-diphenyl-2,5-thiophenediyl)di-4,1-phenylene]bis[N-(2-methylphenyl)- (9CI) (CA INDEX NAME)



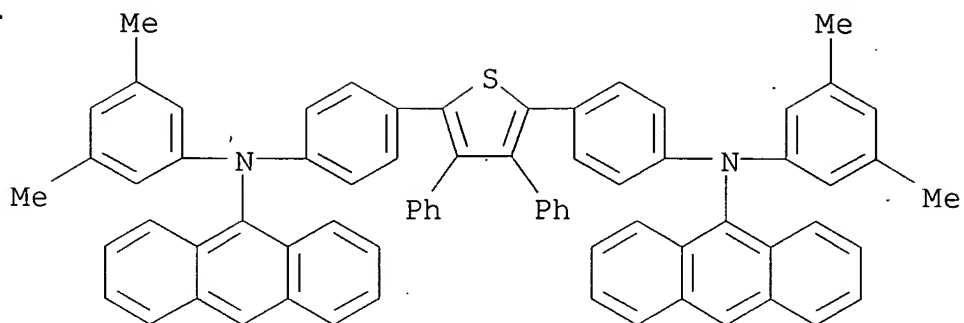
RN 603132-48-5 CAPLUS

CN 9-Anthracenamine, N,N'-[(3,4-diphenyl-2,5-thiophenediyl)di-4,1-phenylene]bis[N-1-naphthalenyl- (9CI) (CA INDEX NAME)



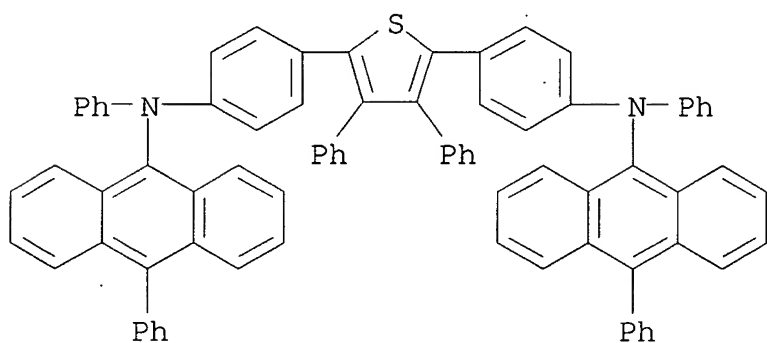
RN 603132-50-9 CAPLUS

CN 9-Anthracenamine, N,N'-[(3,4-diphenyl-2,5-thiophenediyl)di-4,1-phenylene]bis[N-(3,5-dimethylphenyl)- (9CI) (CA INDEX NAME)



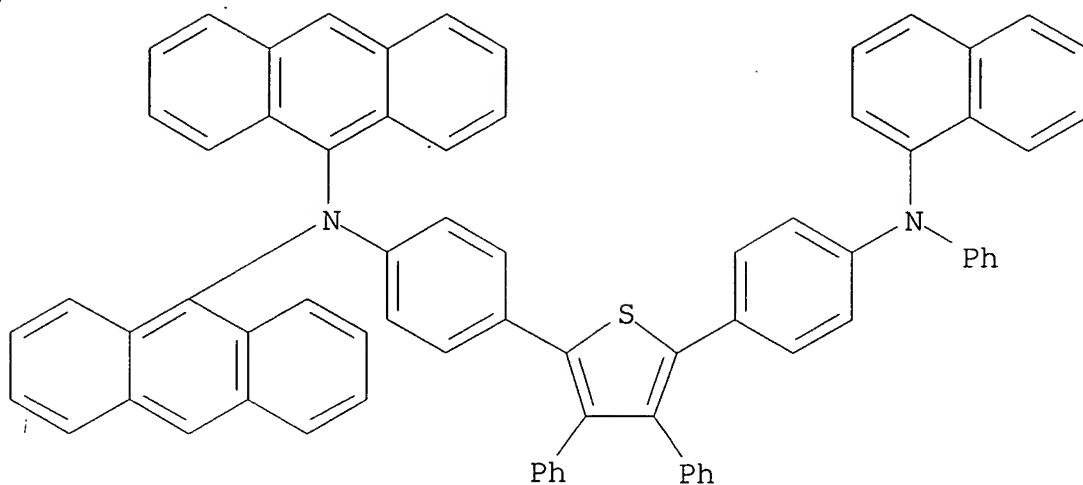
RN 603132-51-0 CAPLUS

CN 9-Anthracenamine, N,N'-[(3,4-diphenyl-2,5-thiophenediyl)di-4,1-phenylene]bis[N,10-diphenyl- (9CI) (CA INDEX NAME)



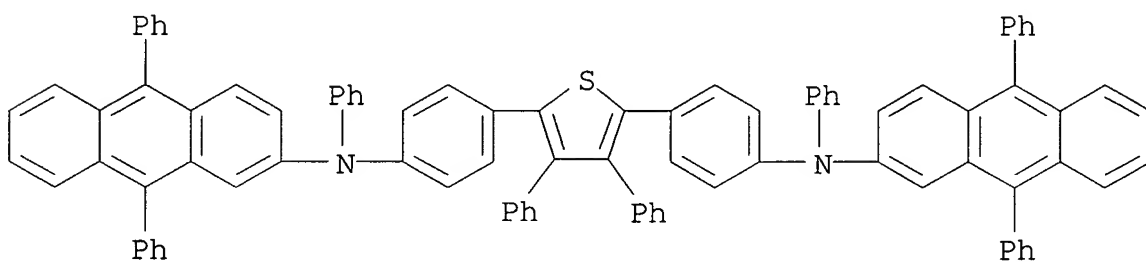
RN 603132-53-2 CAPLUS

CN 9-Anthracenamine, N-9-anthracenyl-N-[4-[5-[4-(1-naphthalenylphenylamino)phenyl]-3,4-diphenyl-2-thienyl]phenyl]- (9CI) (CA INDEX NAME)



RN 603132-55-4 CAPLUS

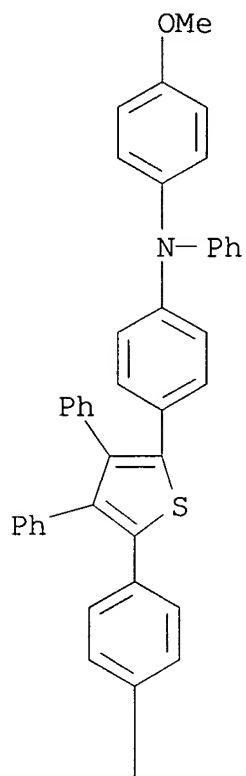
CN 2-Anthracenamine, N,N'-[(3,4-diphenyl-2,5-thiophenediyl)di-4,1-phenylene]bis[N,9,10-triphenyl- (9CI) (CA INDEX NAME)



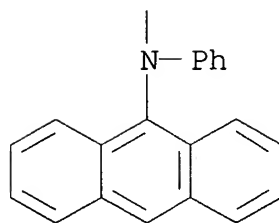
RN 603132-56-5 CAPLUS

CN 9-Anthracenamine, N-[4-[5-[4-[(4-methoxyphenyl)phenylamino]phenyl]-3,4-diphenyl-2-thienyl]phenyl]-N-phenyl- (9CI) (CA INDEX NAME)

PAGE 1-A

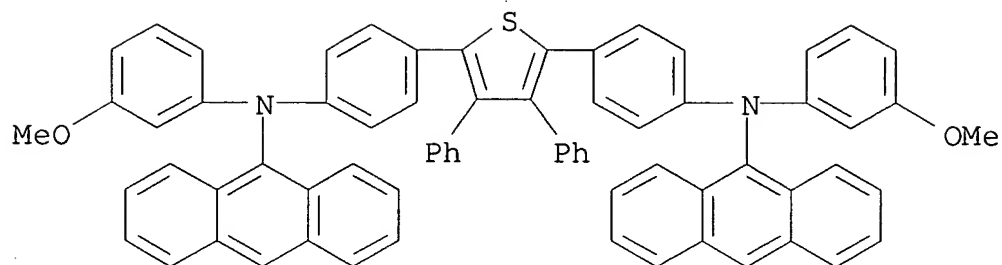


PAGE 2-A



RN 603132-57-6 CAPLUS  
CN 9-Anthracenamine, N,N'-[(3,4-diphenyl-2,5-thiophenediyl)di-4,1-phenylene]bis[N-(3-methoxyphenyl)- (9CI) (CA INDEX NAME)

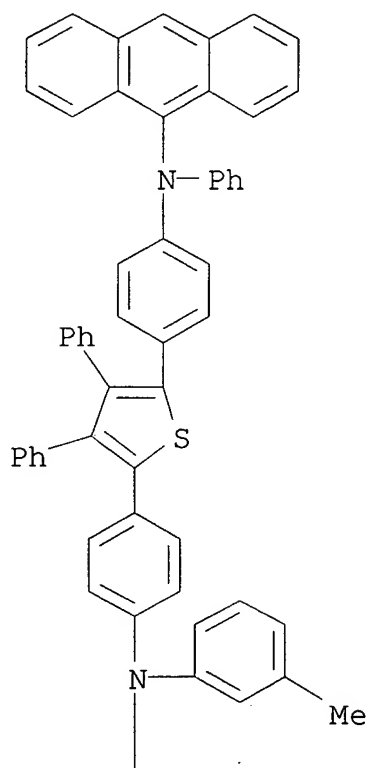




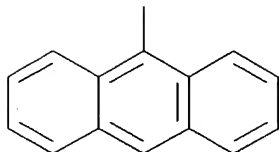
RN 603132-58-7 CAPLUS

CN 9-Anthracenamine, N-[4-[5-[4-[9-anthracenyl(3-methylphenyl)amino]phenyl]-3,4-diphenyl-2-thienyl]phenyl]-N-phenyl- (9CI) (CA INDEX NAME)

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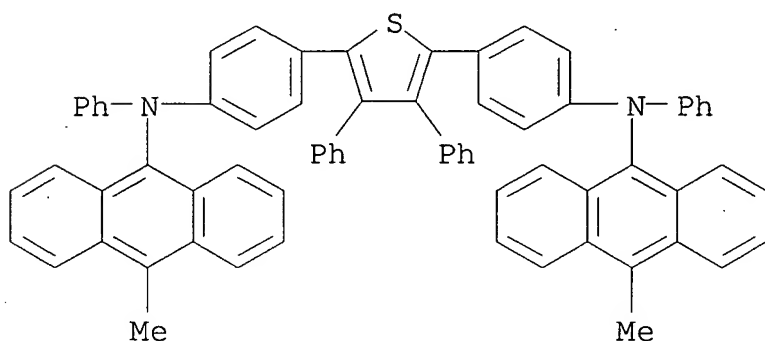


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RN 603132-59-8 CAPLUS

CN 9-Anthracenamine, N,N'-[(3,4-diphenyl-2,5-thiophenediyl)di-4,1-phenylene]bis[10-methyl-N-phenyl- (9CI) (CA INDEX NAME)



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15409-83-3 15409-87-7 101228-53-9

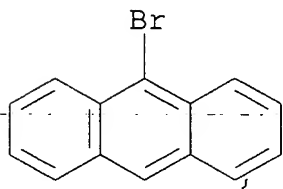
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603132-63-4 603132-64-5 603132-65-6

(novel arylaminophenylthiophene derivs. for organic electroluminescent devices showing stable and bright emission)

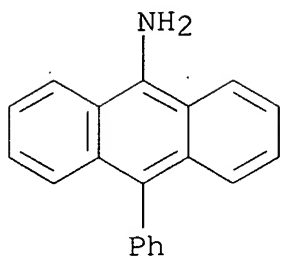
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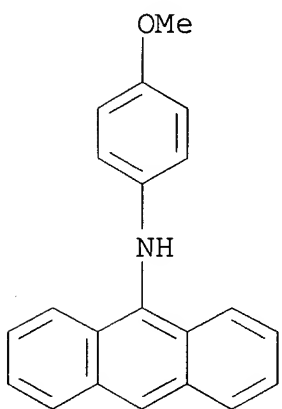
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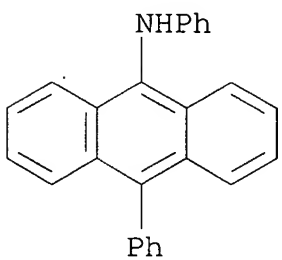
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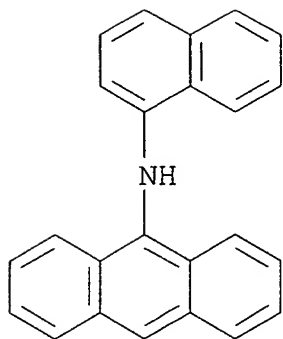
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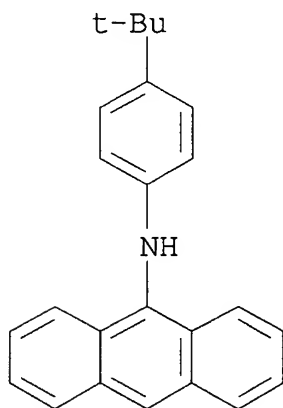
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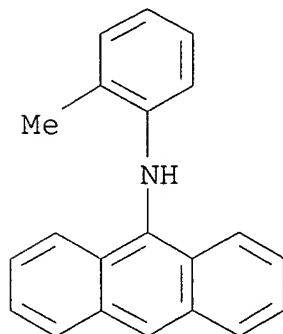
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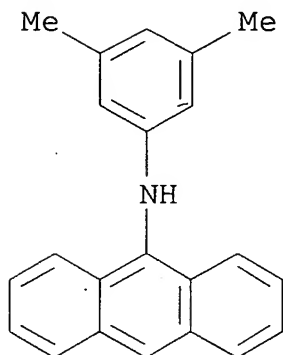


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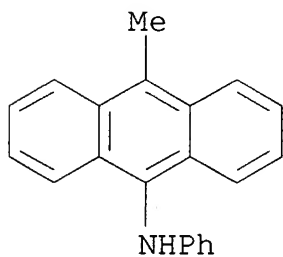
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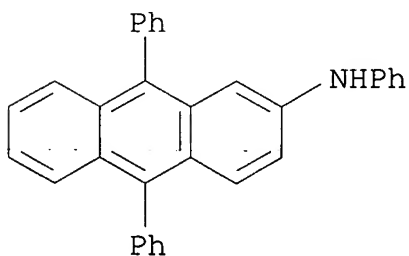
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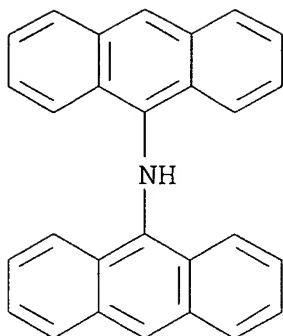
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CN 9-Anthracenamine, 10-methyl-N-phenyl- (9CI) (CA INDEX NAME)



RN 603132-64-5 CAPLUS  
CN 2-Anthracenamine, N,9,10-triphenyl- (9CI) (CA INDEX NAME)



RN 603132-65-6 CAPLUS  
CN 9-Anthracenamine, N-9-anthracenyl- (9CI) (CA INDEX NAME)



IC ICM C07D333-20  
ICS C07D409-10; C07D417-10; C09K011-06; H05B033-14; H05B033-22

CC 73-11 (**Optical**, Electron, and Mass Spectroscopy and Other Related Properties)  
Section cross-reference(s): 27

IT **Luminescent** substances  
(electroluminescent; novel arylaminophenylthiophene derivs. for organic electroluminescent devices showing stable and bright emission)

IT 566915-46-6P 566915-48-8P 603132-40-7P  
603132-41-8P 603132-45-2P 603132-46-3P  
603132-48-5P 603132-50-9P 603132-51-0P  
603132-53-2P 603132-55-4P 603132-56-5P  
603132-57-6P 603132-58-7P 603132-59-8P  
(novel arylaminophenylthiophene derivs. for organic electroluminescent devices showing stable and bright emission)

IT 86-74-8, Carbazole 90-30-2, 1-Phenylaminonaphthalene 92-66-0,  
4-Bromobiphenyl 122-39-4, Diphenylamine, reactions 625-95-6,  
3-Iodotoluene 1208-86-2, N-Phenyl-4-methoxyaniline  
1564-64-3, 9-Bromoanthracene 1718-54-3  
15409-83-3 15409-87-7 96216-36-3  
101228-53-9 107541-96-8 603132-60-1  
603132-61-2 603132-62-3 603132-63-4  
603132-64-5 603132-65-6  
(novel arylaminophenylthiophene derivs. for organic electroluminescent devices showing stable and bright emission)

L40 ANSWER 32 OF 65 CAPLUS COPYRIGHT 2005 ACS on STN

ACCESSION NUMBER: 2003:723685 CAPLUS

DOCUMENT NUMBER: 139:252299

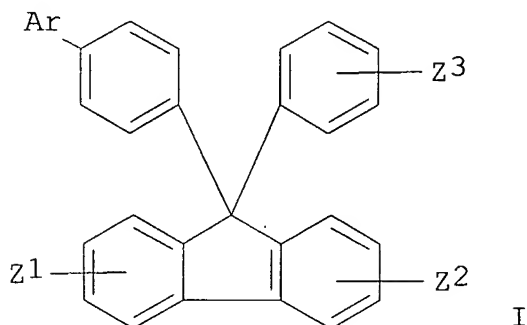
TITLE: Diphenylfluorene derivatives and organic electroluminescence devices using them with high **luminescence** efficiency

INVENTOR(S): Ishida, Tsutomu; Shimamura, Takehiko; Tanabe, Yoshimitsu; Totani, Yoshiyuki; Nakatsuka,

PATENT ASSIGNEE(S): Masakatsu  
 SOURCE: Mitsui Chemicals Inc., Japan  
 Jpn. Kokai Tokkyo Koho, 40 pp.  
 CODEN: JKXXAF  
 DOCUMENT TYPE: Patent  
 LANGUAGE: Japanese  
 FAMILY ACC. NUM. COUNT: 1  
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 2003261472	A2	20030916	JP 2002-62101	2002 0307
PRIORITY APPLN. INFO.:				2002 0307

OTHER SOURCE(S): MARPAT 139:252299  
 GI



AB The electroluminescence devices contain the diphenylfluorene derivs. I (Ar = anthryl; Z1-3 = H, halo, alkyl, alkoxy, aryl, aralkyl) between a pair of electrodes. The electroluminescence devices may further contain luminescent organic metal complexes and triarylamine.

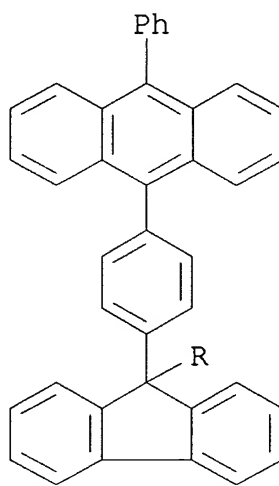
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 597554-06-8P 597554-07-9P 597554-08-0P  
 597554-09-1P 597554-10-4P 597554-11-5P  
 597554-12-6P 597554-13-7P 597554-14-8P  
 597554-15-9P 597554-16-0P 597554-17-1P  
 597554-18-2P 597554-19-3P 597554-20-6P  
 597554-21-7P 597554-22-8P 597554-23-9P

(anthrylphenylphenylfluorene derivs. for organic EL devices with high **luminescence** efficiency)

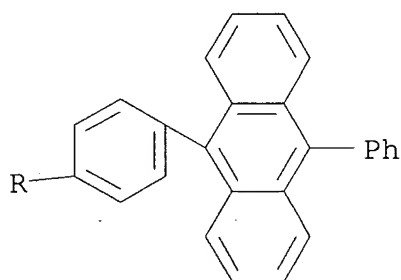
RN 460347-61-9 CAPLUS

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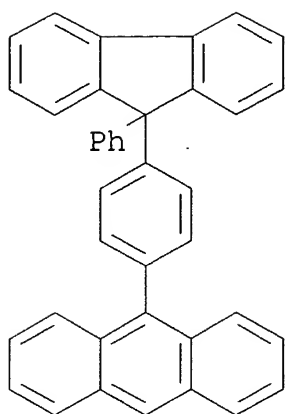
PAGE 2-A



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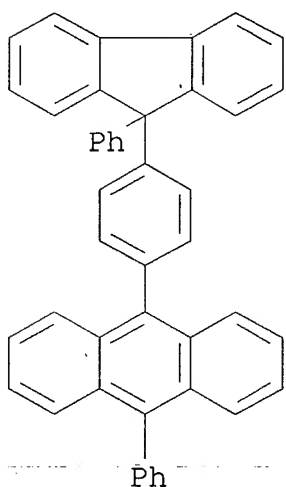
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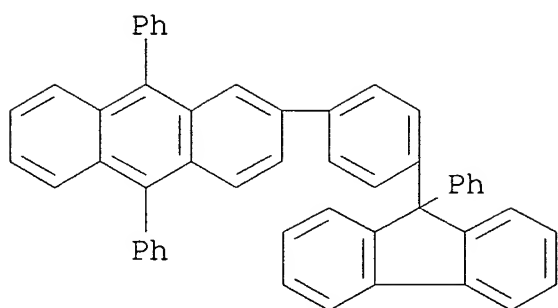
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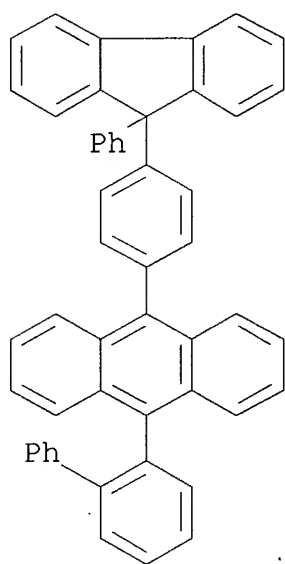
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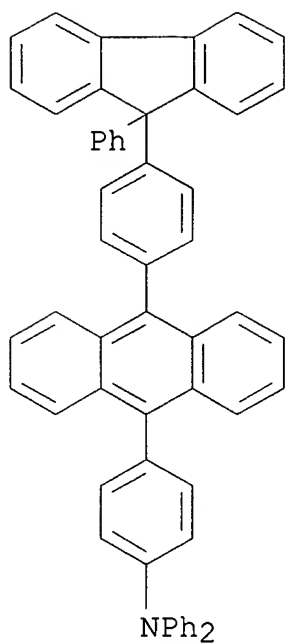
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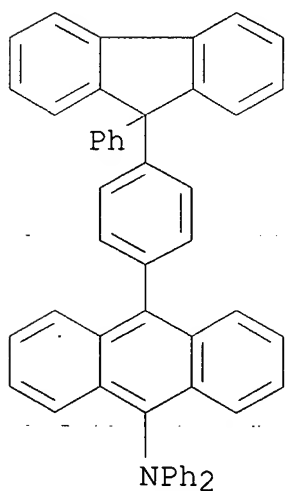
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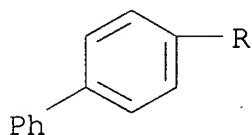
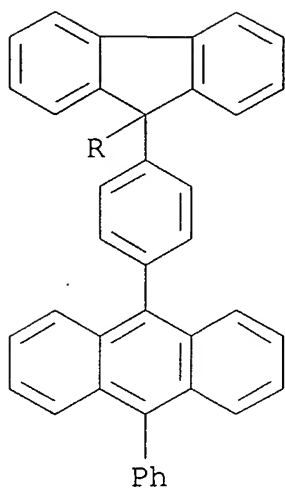
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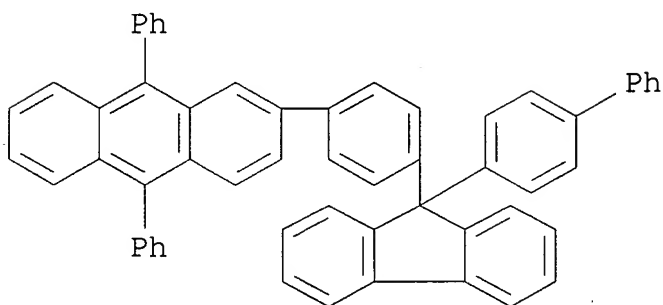
RN 597554-10-4 CAPLUS

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RN 597554-11-5 CAPLUS

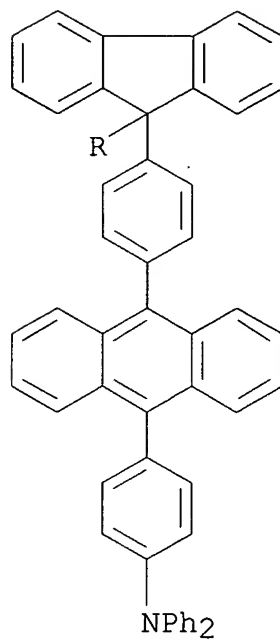
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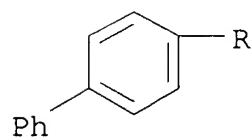
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CN Benzenamine, 4-[10-[4-(9-[1,1'-biphenyl]-4-yl-9H-fluoren-9-yl)phenyl]-9-anthracenyl]-N,N-diphenyl- (9CI) (CA INDEX NAME)

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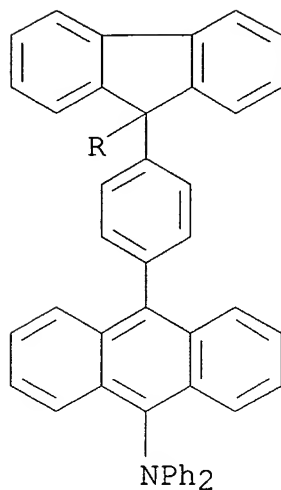


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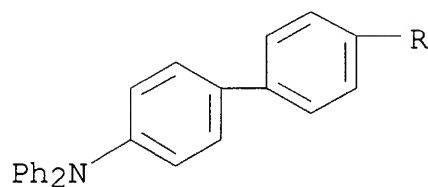


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 CN 9-Anthracenamine, 10-[4-[9-[4'-(diphenylamino)[1,1'-biphenyl]-4-yl]-9H-fluoren-9-yl]phenyl]-N,N-diphenyl- (9CI) (CA INDEX NAME)

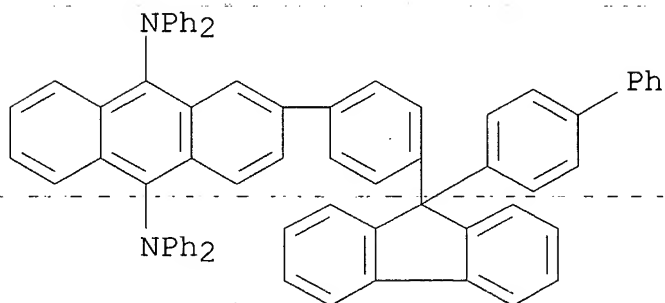
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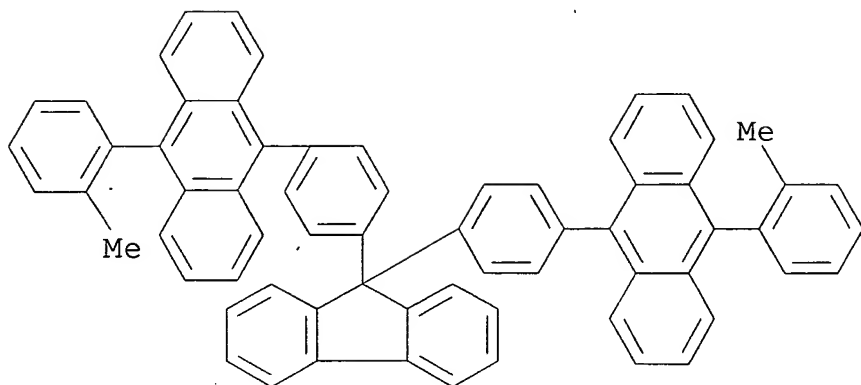
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RN 597554-14-8 CAPLUS  
 CN 9,10-Anthracenediamine, 2-[4-(9-[1,1'-biphenyl]-4-yl-9H-fluoren-9-yl)phenyl]-N,N,N',N'-tetraphenyl- (9CI) (CA INDEX NAME)

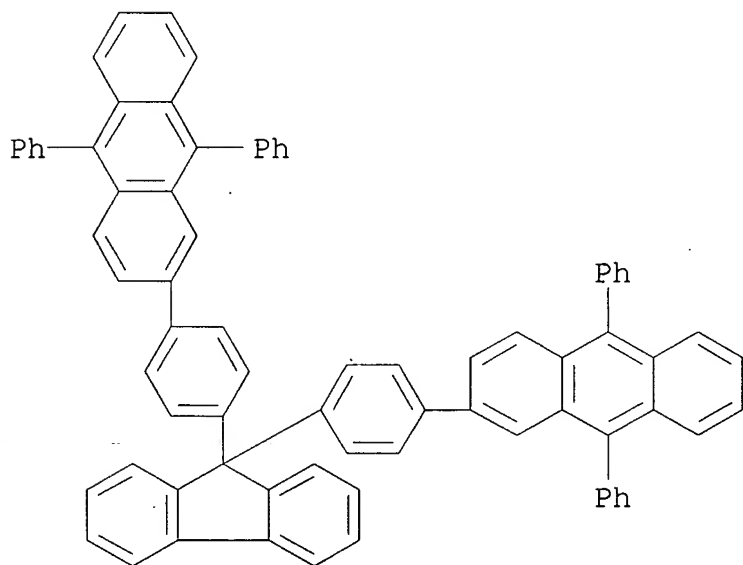


RN 597554-15-9 CAPLUS  
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RN 597554-16-0 CAPLUS

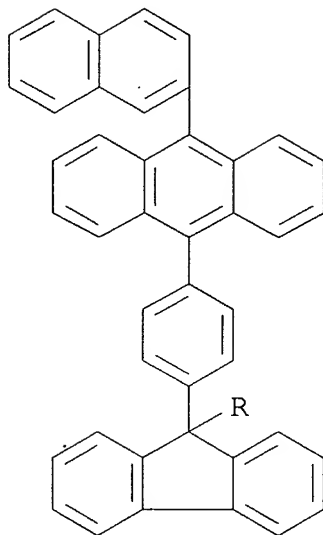
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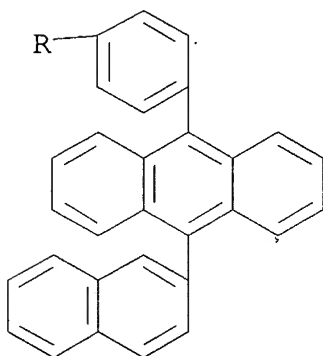
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CN Anthracene, 9,9'-(9H-fluoren-9-ylidenedi-4,1-phenylene)bis[10-(2-naphthalenyl)- (9CI) (CA INDEX NAME)

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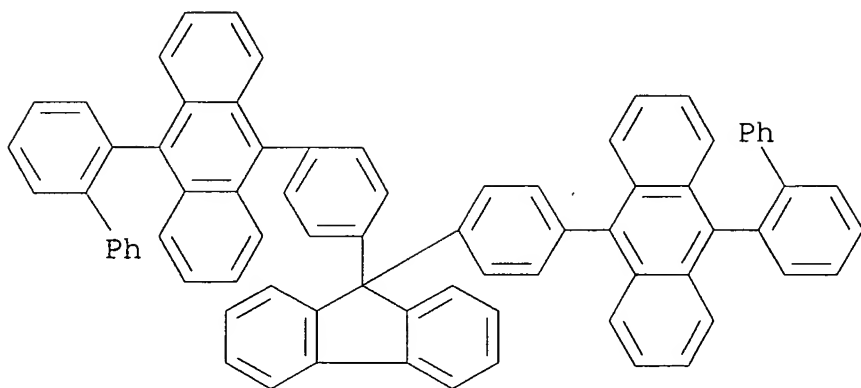
PAGE 2-A



RN 597554-18-2 CAPLUS

CN Anthracene, 9,9'-(9H-fluoren-9-ylidenedi-4,1-phenylene)bis[10-  
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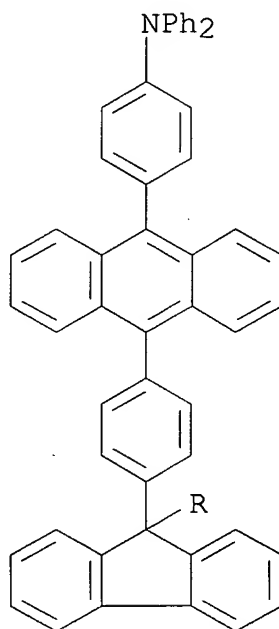




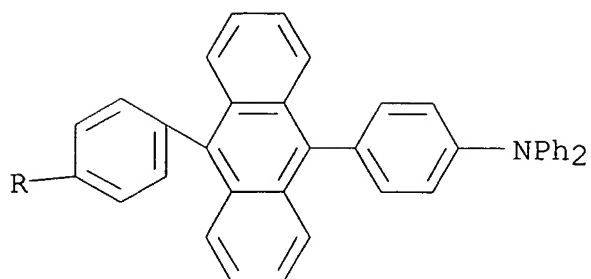
RN 597554-19-3 CAPLUS

CN Benzenamine, 4,4'-[9H-fluoren-9-ylidenebis(4,1-phenylene-10,9-anthracenediyl)]bis[N,N-diphenyl- (9CI) (CA INDEX NAME)

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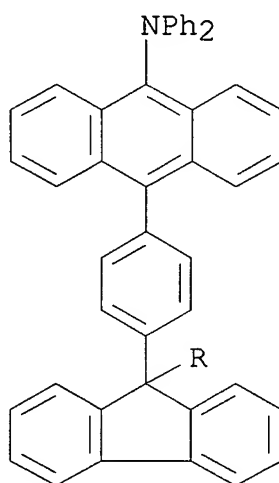


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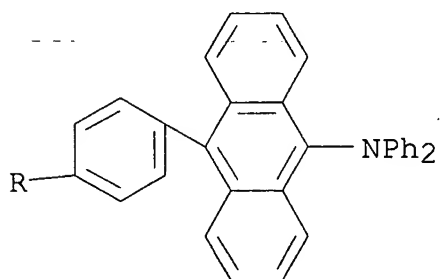


RN 597554-20-6 CAPLUS  
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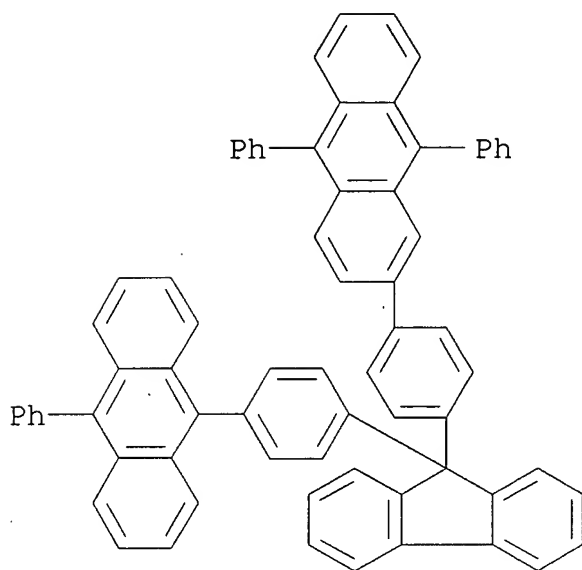
PAGE 1-A



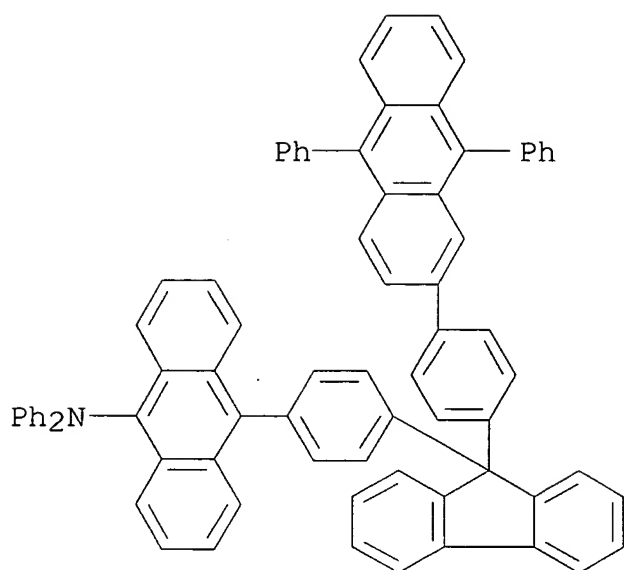
PAGE 2-A



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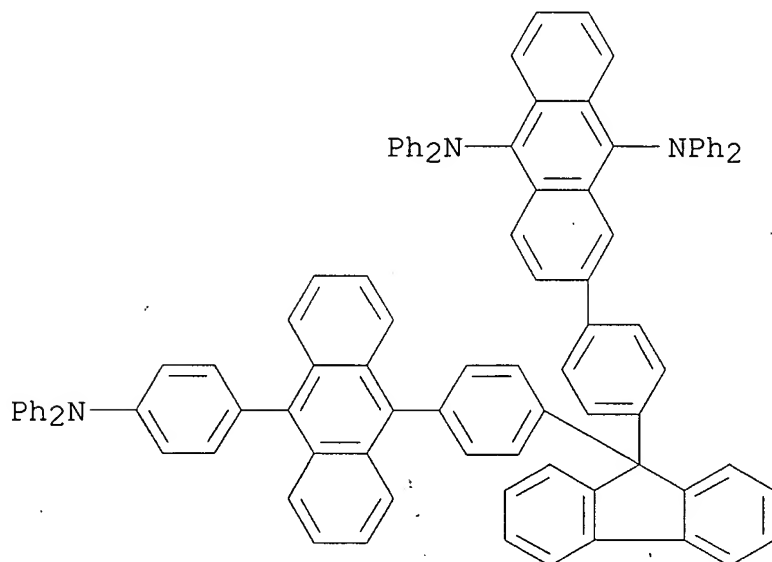


RN 597554-22-8 CAPLUS  
CN 9-Anthracenamine, 10-[4-[9-[4-(9,10-diphenyl-2-anthracenyl)phenyl]-9H-fluoren-9-yl]phenyl]-N,N-diphenyl- (9CI) (CA INDEX NAME)



RN 597554-23-9 CAPLUS

CN 9,10-Anthracenediamine, 2-[4-[9-[4-[10-[4-(diphenylamino)phenyl]-9-anthracenyl]phenyl]-9H-fluoren-9-yl]phenyl]-N,N,N',N'-tetraphenyl-  
(9CI) (CA INDEX NAME)



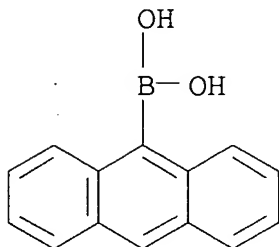
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597554-02-4 597554-03-5

(anthrylphenylphenylfluorene derivs. for organic EL devices with high **luminescence** efficiency)

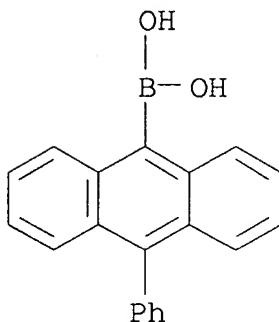
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CN Boronic acid, 9-anthracenyl- (9CI) (CA INDEX NAME)



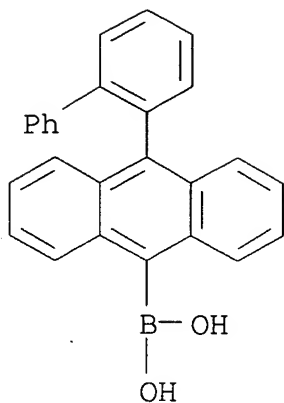
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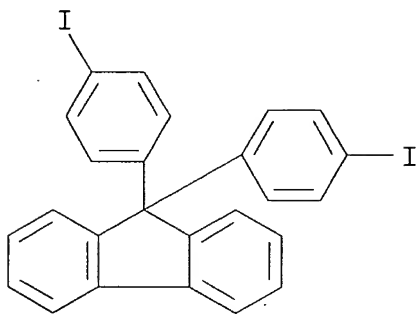


RN 400607-48-9 CAPLUS

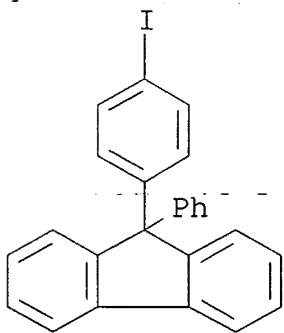
CN Boronic acid, (10-[1,1'-biphenyl]-2-yl-9-anthracenyl)- (9CI) (CA INDEX NAME)



RN 474115-76-9 CAPLUS  
 CN 9H-Fluorene, 9,9-bis(4-iodophenyl)- (9CI) (CA INDEX NAME)

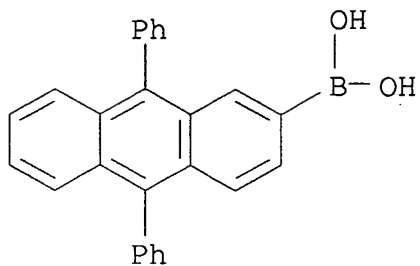


RN 597553-97-4 CAPLUS  
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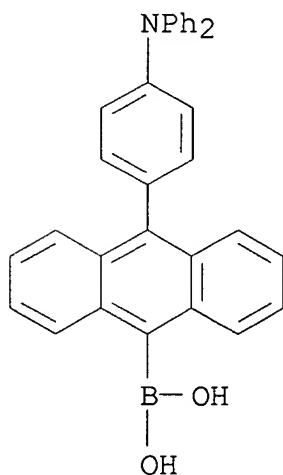


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NAME)

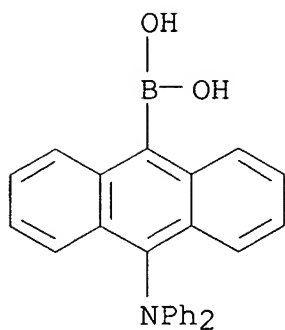


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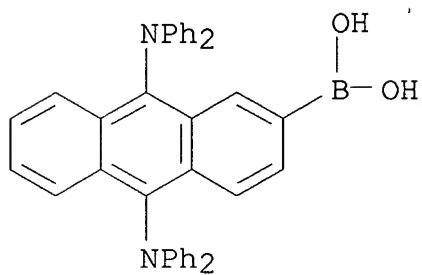
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NAME)



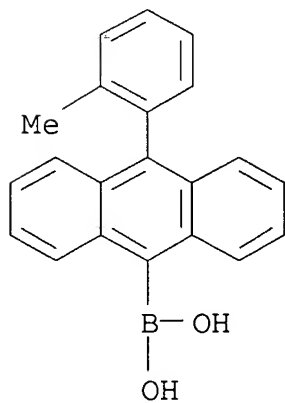
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CN Boronic acid, [9,10-bis(diphenylamino)-2-anthracenyl]- (9CI) (CA INDEX NAME)



RN 597554-02-4 CAPLUS

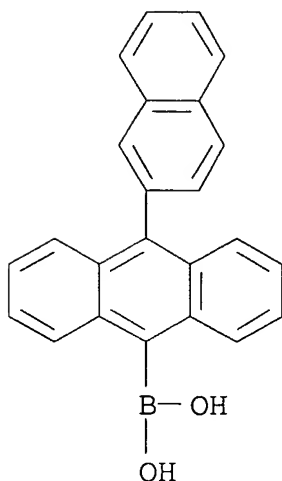
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RN 597554-03-5 CAPLUS



CN Boronic acid, [10-(2-naphthalenyl)-9-anthracenyl]- (9CI) (CA  
INDEX NAME)



- IC ICM C07C013-573  
ICS C07C211-54; C07C211-61; C09K011-06; H05B033-14; H05B033-22
- CC 73-11 (Optical, Electron, and Mass Spectroscopy and  
Other Related Properties)
- IT Electroluminescent devices  
(anthrylphenylphenylfluorene derivs. for organic EL devices with  
high **luminescence** efficiency)
- IT 460347-61-9P 597554-04-6P 597554-05-7P  
597554-06-8P 597554-07-9P 597554-08-0P  
597554-09-1P 597554-10-4P 597554-11-5P  
597554-12-6P 597554-13-7P 597554-14-8P  
597554-15-9P 597554-16-0P 597554-17-1P  
597554-18-2P 597554-19-3P 597554-20-6P  
597554-21-7P 597554-22-8P 597554-23-9P  
(anthrylphenylphenylfluorene derivs. for organic EL devices with  
high **luminescence** efficiency)
- IT 98-80-6, Phenylboric acid 100622-34-2 201802-67-7  
334658-75-2 400607-48-9 474115-76-9  
597553-97-4 597553-98-5 597553-99-6  
597554-00-2 597554-01-3 597554-02-4  
597554-03-5  
(anthrylphenylphenylfluorene derivs. for organic EL devices with  
high **luminescence** efficiency)
- IT 2085-33-8, Tris(8-quinolinolato)aluminum 24601-13-6,  
Bis(2-methyl-8-quinolinolato)aluminum-μ-oxo-bis(2-methyl-8-  
quinolinolato)aluminum 65181-78-4 123847-85-8,  
4,4'-Bis[N-phenyl-N-(1''-naphthyl)amino]biphenyl 124729-98-2,  
4,4',4'''-Tris [N-(3'''-methylphenyl)-N-phenylamino]triphenylamine

146162-54-1, Bis(2-methyl-8-quinolinolato)(4-phenylphenolato)aluminum

(luminescent layer containing;  
anthrylphenylphenylfluorene derivs. for organic EL devices with  
high luminescence efficiency)

L40 ANSWER 33 OF 65 CAPLUS COPYRIGHT 2005 ACS on STN

ACCESSION NUMBER: 2003:673843 CAPLUS

DOCUMENT NUMBER: 139:221355

TITLE: Diaminonaphthalene compounds and their organic electroluminescent devices having long luminescence life and durability

INVENTOR(S): Totani, Yoshiyuki; Shimamura, Takehiko; Ishida, Tsutomu; Tanabe, Yoshimitsu; Nakatsuka, Masakatsu

PATENT ASSIGNEE(S): Mitsui Chemicals Inc., Japan

SOURCE: Jpn. Kokai Tokkyo Koho, 21 pp.

CODEN: JKXXAF

DOCUMENT TYPE: Patent

LANGUAGE: Japanese

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

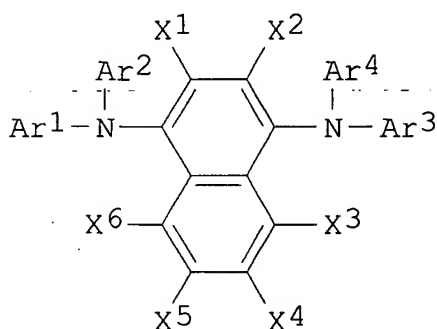
PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
-----	----	-----	-----	
JP 2003238502	A2	20030827	JP 2002-36418	2002 0214

PRIORITY APPLN. INFO.: JP 2002-36418

2002  
0214

OTHER SOURCE(S): MARPAT 139:221355

GI



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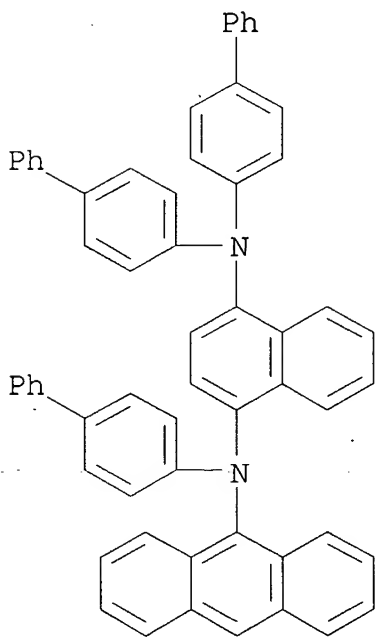
AB The diaminonaphthalene compds. are represented by general formula of I [Arl-Ar4 = (un)substituted aryl,  $\geq 1$  of Ar1-Ar4 = condensed aromatic hydrocarbyl; X1-X6 = H, OnZ; Z = (halogen-substituted) alkyl, aryl; n = 0, 1]. The organic EL device has  $\geq 1$  **layers** containing I, maybe in a hole injection-transporting **layer** or a **luminescent layer**.

IT 586414-40-6P 586414-42-8P 586414-43-9P  
586414-46-2P

(diaminonaphthalene compds. for hole injection-transporting **layers** or **luminescent layers** of organic EL devices having long **luminescence** life and durability)

RN 586414-40-6 CAPLUS

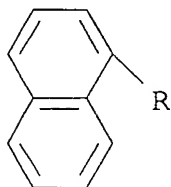
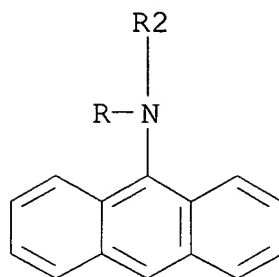
CN 1,4-Naphthalenediamine, N-9-anthracenyl-N,N',N'-tris([1,1'-biphenyl]-4-yl)- (9CI) (CA INDEX NAME)



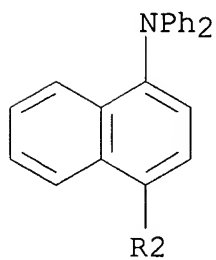
RN 586414-42-8 CAPLUS

CN 1,4-Naphthalenediamine, N-9-anthracenyl-N-1-naphthalenyl-N',N'-diphenyl- (9CI) (CA INDEX NAME)

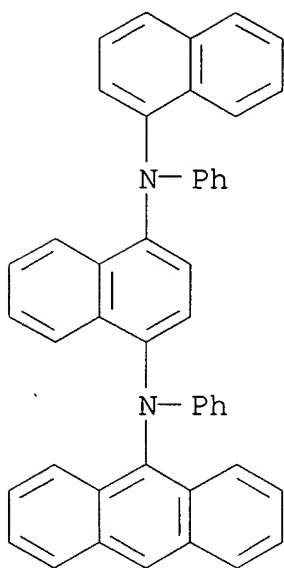
PAGE 1-A



PAGE 2-A

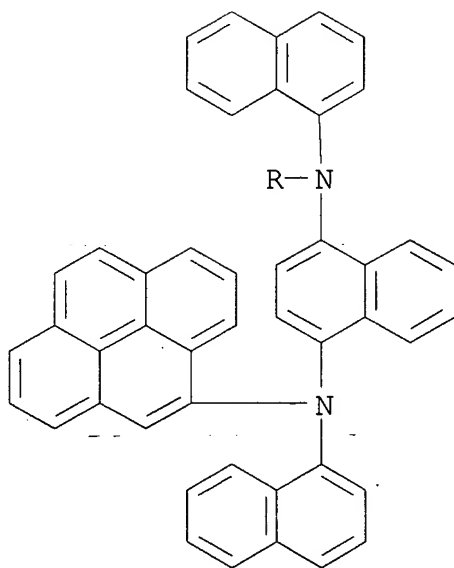


RN 586414-43-9 CAPLUS  
CN 1,4-Naphthalenediamine, N-9-anthracenyl-N'-1-naphthalenyl-N,N'-  
diphenyl- (9CI) (CA INDEX NAME)

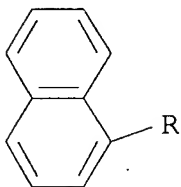


RN 586414-46-2 CAPLUS  
CN 1,4-Naphthalenediamine, N,N,N'-tri-1-naphthalenyl-N'-4-pyrenyl-  
(9CI) (CA INDEX NAME)

PAGE 1-A



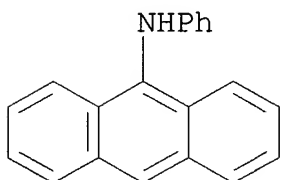
PAGE 2-A



IT 15424-38-1 101228-53-9 586414-47-3  
(diaminonaphthalene compds. for hole injection-transporting  
layers or luminescent layers of  
organic EL devices having long luminescence life and  
durability)

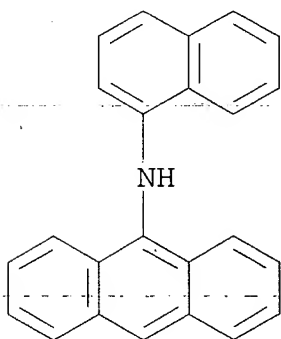
RN 15424-38-1 CAPLUS

CN 9-Anthracenamine, N-phenyl- (9CI) (CA INDEX NAME)



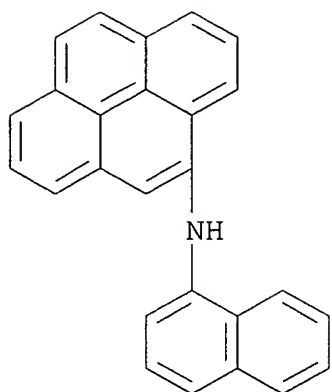
RN 101228-53-9 CAPLUS

CN 9-Anthracenamine, N-1-naphthalenyl- (9CI) (CA INDEX NAME)



RN 586414-47-3 CAPLUS

CN 4-Pyrenamine, N-1-naphthalenyl- (9CI) (CA INDEX NAME)



- IC ICM C07C211-57  
ICS C07C211-61; C09K011-06; H05B033-14; H05B033-22
- CC 73-11 (**Optical**, Electron, and Mass Spectroscopy and Other Related Properties)  
Section cross-reference(s): 25
- IT Electroluminescent devices  
(organic; diaminonaphthalene compds. for hole injection-transporting **layers** or **luminescent layers** of organic EL devices having long **luminescence** life and durability)
- IT 51325-05-4, Poly(thiophene-2,5-diyl) 124729-98-2  
(1st hole injection-transporting **layer**; diaminonaphthalene compds. for hole injection-transporting **layers** or **luminescent layers** of organic EL devices having long **luminescence** life and durability)
- IT 244280-93-1P 244280-97-5P **586414-40-6P** 586414-41-7P  
**586414-42-8P** **586414-43-9P** 586414-44-0P  
586414-45-1P **586414-46-2P**  
(diaminonaphthalene compds. for hole injection-transporting **layers** or **luminescent layers** of organic EL devices having long **luminescence** life and durability)
- IT 83-53-4, 1,4-Dibromonaphthalene 90-30-2 122-39-4,  
N,N-Diphenylamine, reactions 135-88-6 737-89-3  
**15424-38-1** **101228-53-9** 102113-98-4  
**586414-47-3**  
(diaminonaphthalene compds. for hole injection-transporting **layers** or **luminescent layers** of organic EL devices having long **luminescence** life and durability)
- IT 2085-33-8, Alq3  
(electron injection-transporting **layer**;

diaminonaphthalene compds. for hole injection-transporting  
**layers or luminescent layers** of  
 organic EL devices having long **luminescence** life and  
 durability)

L40 ANSWER 34 OF 65 CAPLUS COPYRIGHT 2005 ACS on STN

ACCESSION NUMBER: 2003:550311 CAPLUS

DOCUMENT NUMBER: 139:108452

TITLE: Monoamine as additive for organic  
 electroluminescent device emitting  
 high-intensity yellow to red light

INVENTOR(S): Tanaka, Hiroaki; Kanno, Masaki; Yagi, Tamao;  
 Toba, Yasumasa

PATENT ASSIGNEE(S): Toyo Ink Mfg. Co., Ltd., Japan

SOURCE: Jpn. Kokai Tokkyo Koho, 29 pp.

CODEN: JKXXAF

DOCUMENT TYPE: Patent

LANGUAGE: Japanese

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO. -----	KIND ----	DATE -----	APPLICATION NO. -----	DATE
JP 2003201472	A2	20030718	JP 2002-305258	2002 1021
JP 2004124106	A2	20040422	JP 2004-3764	2004 0109
PRIORITY APPLN. INFO.:			JP 2001-328710	A 2001 1026
			JP 2002-305258	A3 2002 1021

OTHER SOURCE(S): MARPAT 139:108452

AB Claimed is the monoamine Ar1NR1R2 [Ar1 = (substituted) perylenyl;  
 R1-2 = (substituted) monovalent aliphatic- or aromatic hydrocarbyl,  
 (substituted) monovalent aliphatic- or aromatic heterocycle; at least  
 one of R1-2 = -Ar2X1Ar3; Ar2 = (substituted) divalent aromatic-  
 hydrocarbyl or heterocycle; Ar3 = (substituted) monovalent aromatic-  
 hydrocarbyl or heterocycle; X1 = direct bond, O, S, :C(R3)R4,  
 :Si(R5)R6; R3-6 = H, (substituted) monovalent aliphatic or aromatic  
 hydrocarbyl; Ar1 and R1, Ar1 and R2, and/or R1 and R2 may form a  
 ring]. An organic electroluminescent device comprises the amine in



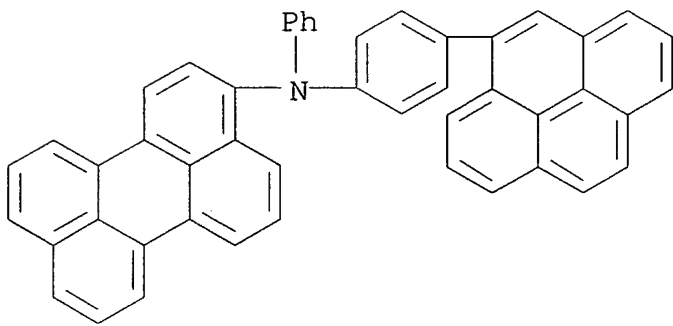
an organic layer, preferably in a light-emitting layer. The device shows long service life.

IT 558453-94-4 558453-97-7 558453-98-8  
558454-02-7

(organic electroluminescent device emitting high-intensity yellow to red light containing perylenyl aromatic amine in organic layer)

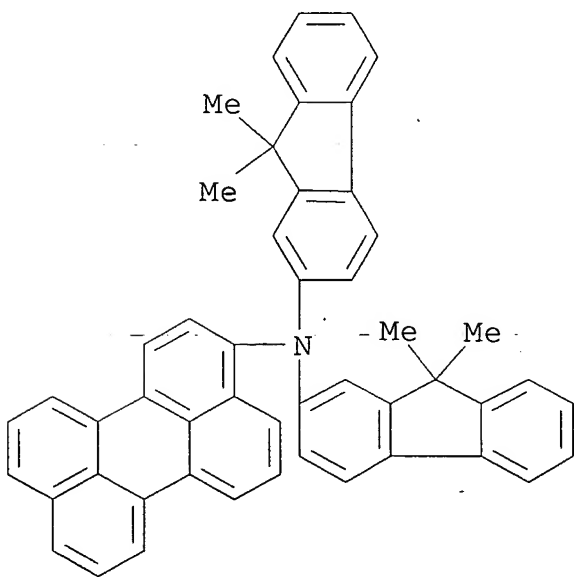
RN 558453-94-4 CAPLUS

CN 3-Perylenamine, N-phenyl-N-[4-(4-pyrenyl)phenyl]- (9CI) (CA INDEX NAME)

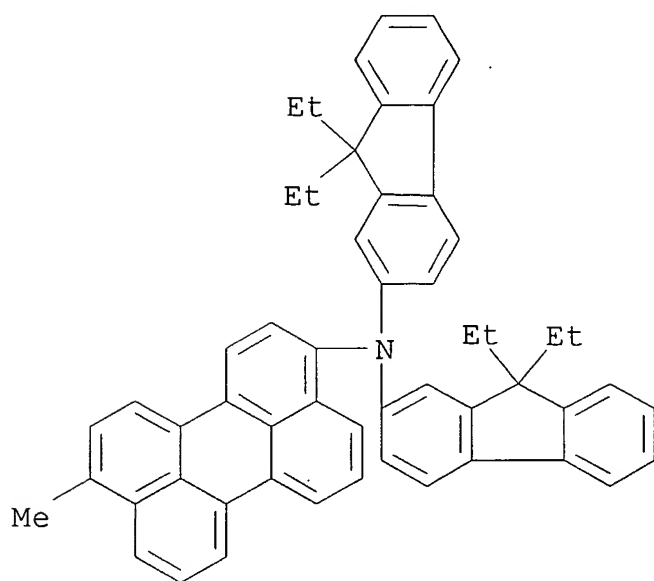


RN 558453-97-7 CAPLUS

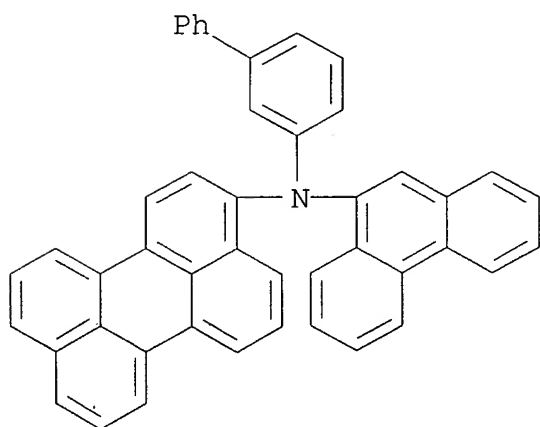
CN 3-Perylenamine, N,N-bis(9,9-dimethyl-9H-fluoren-2-yl)- (9CI) (CA INDEX NAME)



RN 558453-98-8 CAPLUS  
CN 3-Perylenamine, N,N-bis(9,9-diethyl-9H-fluoren-2-yl)-10-methyl-  
(9CI) (CA INDEX NAME)



RN 558454-02-7 CAPLUS  
CN 3-Perylenamine, N-[1,1'-biphenyl]-3-yl-N-9-phenanthrenyl- (9CI)  
(CA INDEX NAME)



IC ICM C09K011-06  
ICS C07C211-61; C07C217-80; C07C217-92; C07C323-37; C07D213-74;  
C07D215-38; C07D333-20; C07D333-36; C07D333-58; C07F007-10;

H05B033-14

- CC 73-11 (**Optical**, Electron, and Mass Spectroscopy and Other Related Properties)
- IT Amines, uses  
(aromatic perylenyl; organic electroluminescent device emitting high-intensity yellow to red light containing perylenyl aromatic amine in organic layer)
- IT Electroluminescent devices  
(organic; organic electroluminescent device emitting high-intensity yellow to red light containing perylenyl aromatic amine in organic layer)
- IT 536761-34-9P 558453-80-8P  
(organic electroluminescent device emitting high-intensity yellow to red light containing perylenyl aromatic amine in organic layer)
- IT 536761-35-0 536761-36-1 558453-78-4 558453-79-5  
558453-81-9 558453-82-0 558453-83-1 558453-84-2  
558453-85-3 558453-86-4 558453-87-5 558453-88-6  
558453-89-7 558453-90-0 558453-91-1 558453-92-2  
558453-93-3 **558453-94-4** 558453-95-5 558453-96-6  
**558453-97-7** **558453-98-8** 558453-99-9  
558454-00-5 558454-01-6 **558454-02-7** 558454-03-8  
558454-04-9 558454-05-0 558454-06-1 558454-07-2  
558454-08-3 558454-09-4 558454-10-7 558454-11-8  
558454-12-9 558454-13-0 558454-14-1  
(organic electroluminescent device emitting high-intensity yellow to red light containing perylenyl aromatic amine in organic layer)

L40 ANSWER 35 OF 65 CAPLUS COPYRIGHT 2005 ACS on STN

ACCESSION NUMBER: 2003:488876 CAPLUS

DOCUMENT NUMBER: 139:60191

TITLE: Organic electroluminescence devices with high  
**luminescence** efficiencyINVENTOR(S): Nakatsuka, Masakatsu; Shimamura, Takehiko;  
Ishida, Tsutomu; Tanabe, Yoshimitsu; Totani,  
Yoshiyuki

PATENT ASSIGNEE(S): Mitsui Chemicals Inc., Japan

SOURCE: Jpn. Kokai Tokkyo Koho, 21 pp.

CODEN: JKXXAF

DOCUMENT TYPE: Patent

LANGUAGE: Japanese

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
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JP 2003178881

A2

20030627

JP 2001-375493

2001

1210

PRIORITY APPLN. INFO.:

JP 2001-375493

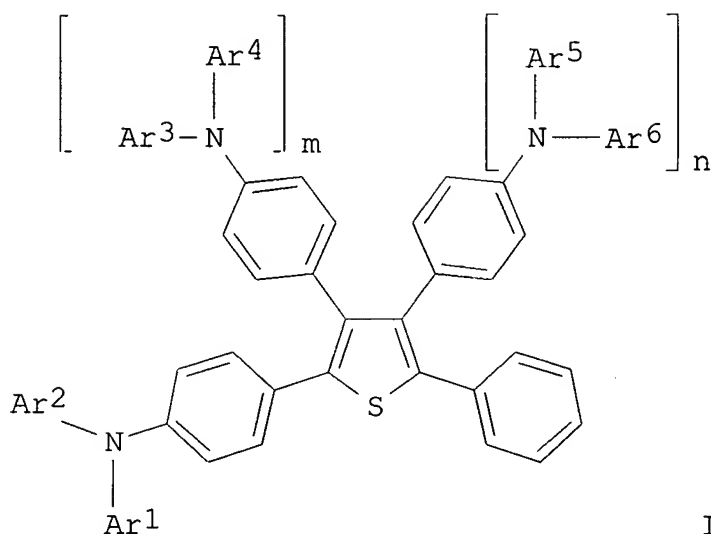
2001

1210

OTHER SOURCE(S):

MARPAT 139:60191

GI



AB The device has  $\geq 1$  **layers** containing arylaminothiophenes I (Ar1-6 = aryl; m, n = 0, 1; m  $\neq$  n; Ar1 and Ar2, Ar3 and Ar4, Ar5 and Ar6 maybe forming a ring with N) between a pair of electrodes. The **layer** containing I may be a hole transport **layer** or a **luminescence layer**.

IT 547755-36-2 547755-37-3 547755-45-3

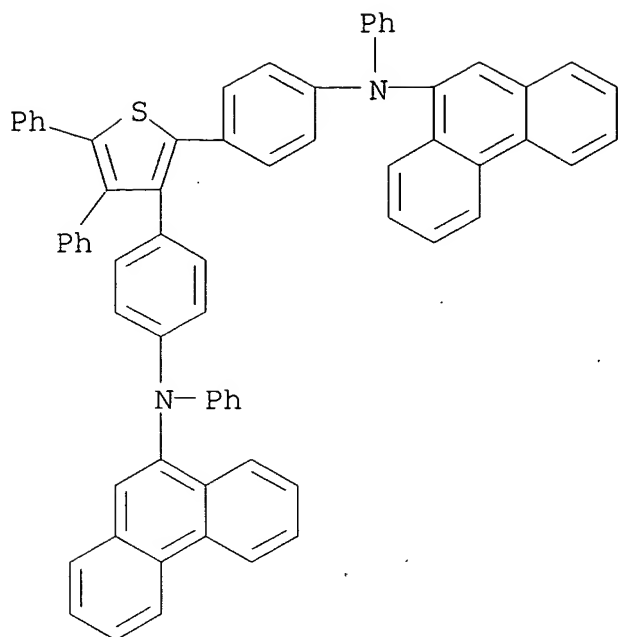
547755-46-4 547755-48-6

(hole transport **layer** containing;

arylaminothiophenes for organic electroluminescence devices with high **luminescence** efficiency)

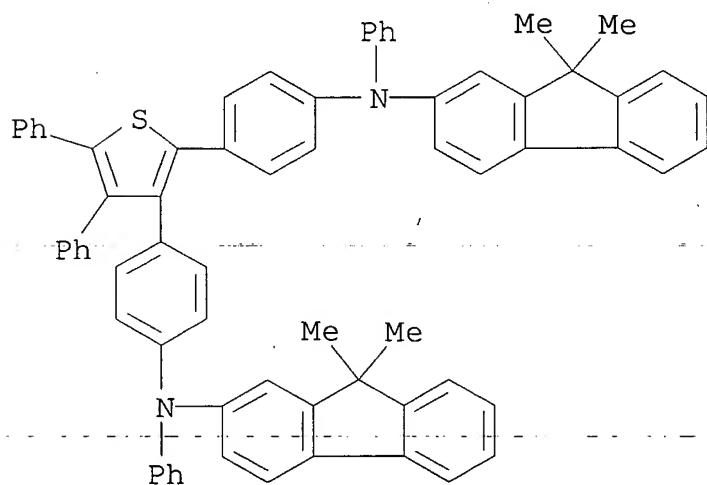
RN 547755-36-2 CAPLUS

CN 9-Phenanthrenamine, N,N'-[(4,5-diphenyl-2,3-thiophenediyl)di-4,1-phenylene]bis[N-phenyl- (9CI) (CA INDEX NAME)



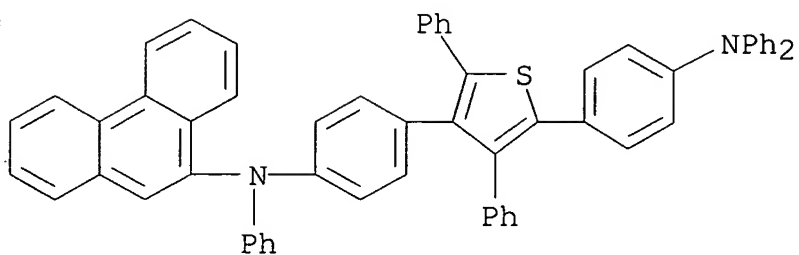
RN 547755-37-3 CAPLUS

CN 9H-Fluoren-2-amine, N,N'-[(4,5-diphenyl-2,3-thiophenediyl)di-4,1-phenylene]bis[9,9-dimethyl-N-phenyl- (9CI) (CA INDEX NAME)



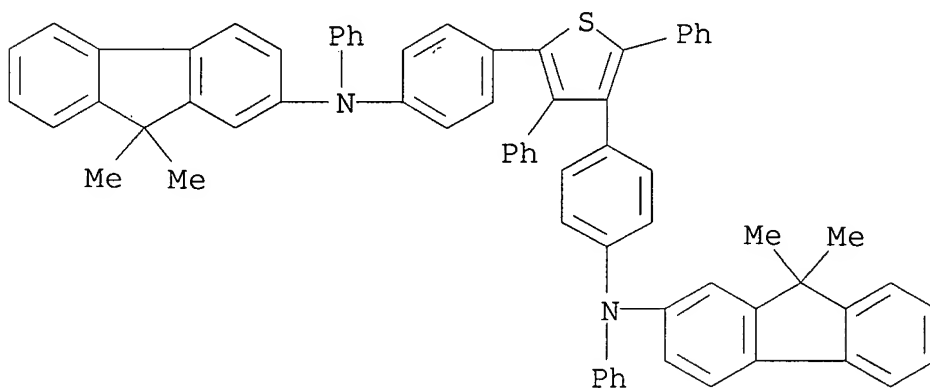
RN 547755-45-3 CAPLUS

CN 9-Phenanthrenamine, N-[4-[5-[4-(diphenylamino)phenyl]-2,4-diphenyl-3-thienyl]phenyl]-N-phenyl- (9CI) (CA INDEX NAME)



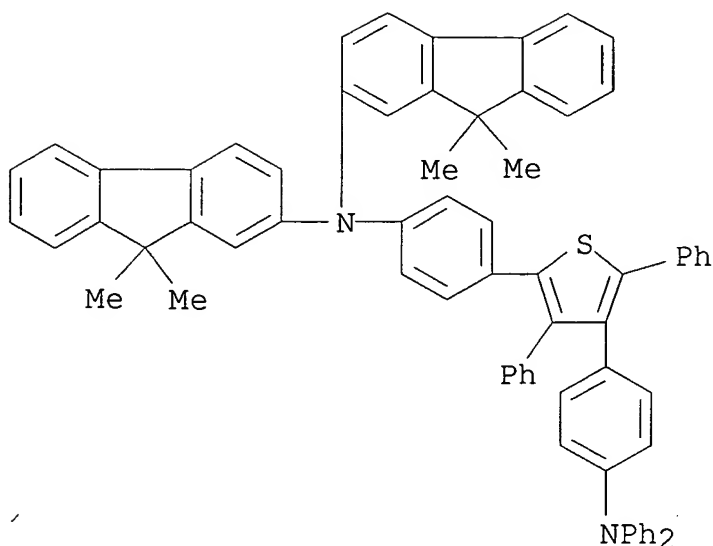
RN 547755-46-4 CAPLUS

CN 9H-Fluoren-2-amine, N,N'-[(3,5-diphenyl-2,4-thiophenediyl)di-4,1-phenylene]bis[9,9-dimethyl-N-phenyl- (9CI) (CA INDEX NAME)



RN 547755-48-6 CAPLUS

CN 9H-Fluoren-2-amine, N-(9,9-dimethyl-9H-fluoren-2-yl)-N-[4-[4-(diphenylamino)phenyl]-3,5-diphenyl-2-thienyl]phenyl]-9,9-dimethyl- (9CI) (CA INDEX NAME)



IC ICM H05B033-14  
ICS C09K011-06; H05B033-22  
CC 73-11 (Optical, Electron, and Mass Spectroscopy and  
Other Related Properties)  
ST arylaminophenylthiophene electroluminescence device hole transport  
**layer; luminescence** efficiency org EL device  
aminophenylthiophene  
IT Electroluminescent devices  
(arylaminophenylthiophenes for organic electroluminescence devices  
with high **luminescence** efficiency)  
IT 547755-25-9 547755-26-0 547755-27-1 547755-28-2  
547755-29-3 547755-30-6 547755-31-7 547755-32-8  
547755-33-9 547755-34-0 547755-35-1 **547755-36-2**  
**547755-37-3** 547755-38-4 547755-39-5 547755-40-8  
547755-41-9 547755-42-0 547755-43-1 547755-44-2  
**547755-45-3 547755-46-4 547755-48-6**  
547755-49-7 547755-50-0 547755-51-1 547755-52-2  
547755-53-3 547755-54-4 547755-55-5  
(hole transport **layer** containing;  
arylaminophenylthiophenes for organic electroluminescence devices  
with high **luminescence** efficiency)

L40 ANSWER 36 OF 65 CAPLUS COPYRIGHT 2005 ACS on STN

ACCESSION NUMBER: 2003:32888 CAPLUS

DOCUMENT NUMBER: 138:245268

TITLE: New Class of Hole-Blocking Amorphous Molecular  
Materials and Their Application in  
Blue-Violet-Emitting Fluorescent and  
Green-Emitting Phosphorescent Organic

## Electroluminescent Devices

AUTHOR(S): Okumoto, Kenji; Shirota, Yasuhiko  
CORPORATE SOURCE: Department of Applied Chemistry, Faculty of  
Engineering, Osaka University, Yamadaoka,  
Suita, Osaka, 565-0871, Japan  
SOURCE: Chemistry of Materials (2003), 15(3), 699-707  
CODEN: CMATEX; ISSN: 0897-4756  
PUBLISHER: American Chemical Society  
DOCUMENT TYPE: Journal  
LANGUAGE: English

AB A new class of hole-blocking amorphous mol. materials for use in organic electroluminescent (EL) devices were developed, which include 1,3,5-tri(4-biphenyl)benzene, 1,3,5-tris(4-fluorobiphenyl-4'-yl)benzene (F-TBB), 1,3,5-tris(9,9-dimethylfluoren-2-yl)benzene, and 1,3,5-tris[4-(9,9-dimethylfluoren-2-yl)phenyl]benzene. They readily form stable amorphous glasses with well-defined glass-transition temps. and are characterized by relatively high oxidation potentials and large HOMO-LUMO energy gaps. The use of these materials as hole blockers enabled blue-violet emission from several emitting amorphous mol. materials with hole-transporting properties in organic EL devices. A **multilayer** organic EL device using N,N-bis(9,9-dimethylfluoren-2-yl)aniline (F2PA) as a blue-violet emitter, F-TBB as a hole blocker, and 4,4',4''-tris[3-methylphenyl(phenyl)amino]triphenylamine and tris(8-quinolinolato)aluminum as hole and electron transporters, resp., exhibited blue-violet emission peaking at 405 nm with a high external quantum efficiency of 1.95%. This device also enabled the doping of a phosphorescent Ir complex, tris(2-phenylpyridine)iridium (Ir(ppy)3), tuning the emission color from blue violet to green by excitation energy transfer from F2PA to Ir(ppy)3.

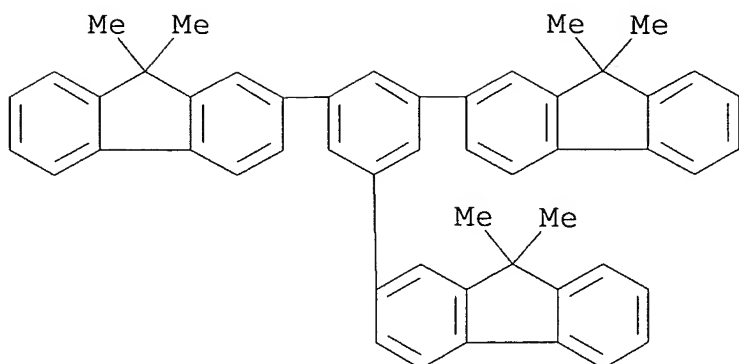
IT 441352-90-5P 441352-91-6P

(hole blocking material; synthesis of organic hole-blocking amorphous mol. materials and application in fluorescent and phosphorescent organic electroluminescent devices)

RN 441352-90-5 CAPLUS

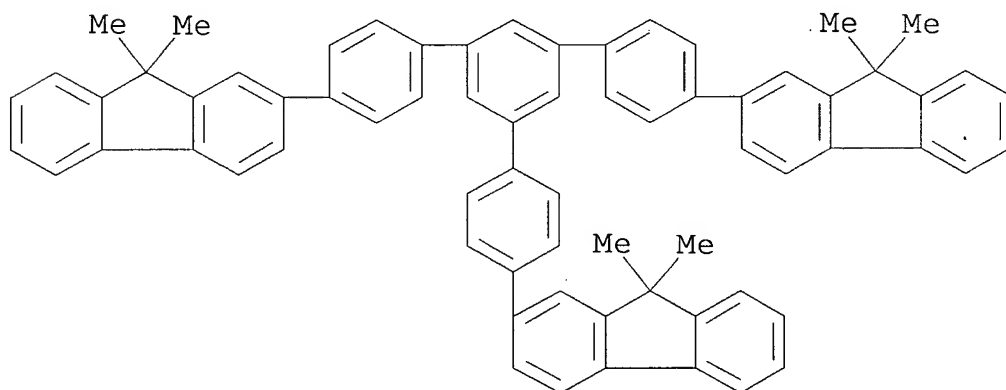
CN 9H-Fluorene, 2,2',2''-(1,3,5-benzenetriyl)tris[9,9-dimethyl- (9CI)  
(CA INDEX NAME)





RN 441352-91-6 CAPLUS

CN 9H-Fluorene, 2,2'-[5'-[4-(9,9-dimethyl-9H-fluoren-2-yl)phenyl][1,1':3',1''-terphenyl]-4,4''-diyl]bis[9,9-dimethyl- (9CI) (CA INDEX NAME)

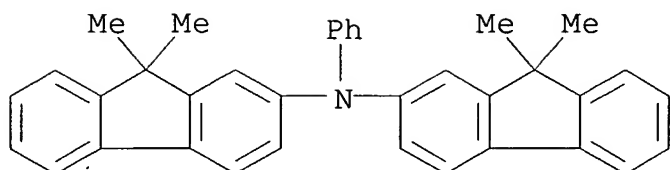


IT 165320-27-4P 246857-02-3P

(light emitting material; synthesis of organic hole-blocking amorphous mol. materials and application in fluorescent and phosphorescent organic electroluminescent devices)

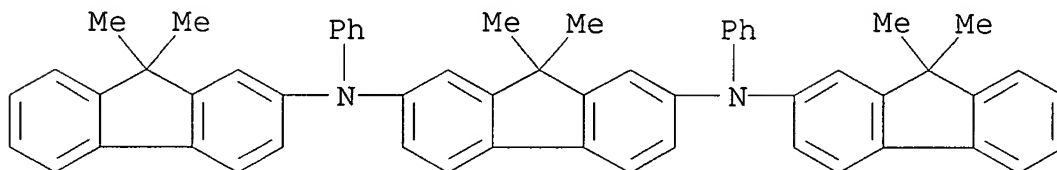
RN 165320-27-4 CAPLUS

CN 9H-Fluoren-2-amine, N-(9,9-dimethyl-9H-fluoren-2-yl)-9,9-dimethyl-N-phenyl- (9CI) (CA INDEX NAME)



RN 246857-02-3 CAPLUS

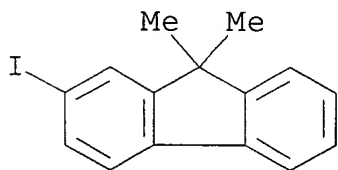
CN 9H-Fluorene-2,7-diamine, N,N'-bis(9,9-dimethyl-9H-fluoren-2-yl)-  
9,9-dimethyl-N,N'-diphenyl- (9CI) (CA INDEX NAME)



IT **144981-85-1P**, 9,9-Dimethyl-2-iodofluorene  
(reactant for synthesis of F2PA; synthesis of organic  
hole-blocking amorphous mol. materials and application in  
fluorescent and phosphorescent organic electroluminescent devices)

RN 144981-85-1 CAPLUS

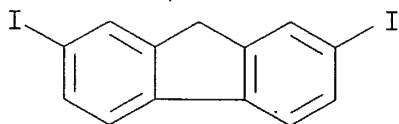
CN 9H-Fluorene, 2-iodo-9,9-dimethyl- (9CI) (CA INDEX NAME)



IT **16218-28-3P**, 2,7-Diiodofluorene **355832-04-1P**,  
N-(9,9-Dimethylfluoren-2-yl)aniline  
(reactant for synthesis of PFFA; synthesis of organic  
hole-blocking amorphous mol. materials and application in  
fluorescent and phosphorescent organic electroluminescent devices)

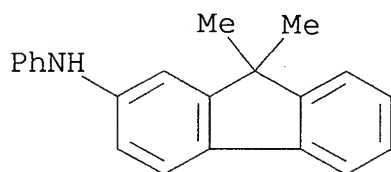
RN 16218-28-3 CAPLUS

CN 9H-Fluorene, 2,7-diiodo- (9CI) (CA INDEX NAME)



RN 355832-04-1 CAPLUS

CN 9H-Fluoren-2-amine, 9,9-dimethyl-N-phenyl- (9CI) (CA INDEX NAME)

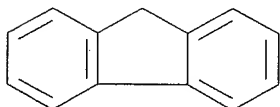


IT 86-73-7, Fluorene

(synthesis of 2-iodofluorene, 2,7-diiodofluorene; synthesis of organic hole-blocking amorphous mol. materials and application in fluorescent and phosphorescent organic electroluminescent devices)

RN 86-73-7 CAPLUS

CN 9H-Fluorene (9CI) (CA INDEX NAME)

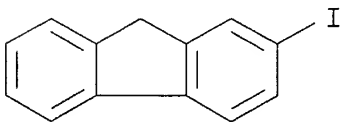


IT 2523-42-4P, 2-Iodofluorene

(synthesis of 9,9-dimethyl-2-iodofluorene, 9,9-dimethyl-2,7-diiodofluorene; synthesis of organic hole-blocking amorphous mol. materials and application in fluorescent and phosphorescent organic electroluminescent devices)

RN 2523-42-4 CAPLUS

CN 9H-Fluorene, 2-iodo- (9CI) (CA INDEX NAME)

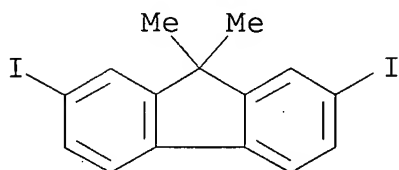


IT 144981-86-2P, 9,9-Dimethyl-2,7-diiodofluorene

(synthesis of N-(9,9-Dimethylfluoren-2-yl)aniline; synthesis of organic hole-blocking amorphous mol. materials and application in fluorescent and phosphorescent organic electroluminescent devices)

RN 144981-86-2 CAPLUS

CN 9H-Fluorene, 2,7-diiodo-9,9-dimethyl- (9CI) (CA INDEX NAME)

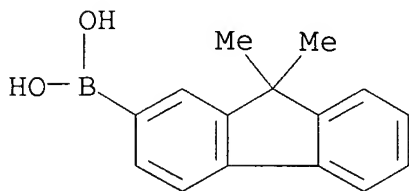


IT 333432-28-3

(synthesis of TFB, TFPB; synthesis of organic hole-blocking amorphous mol. materials and application in fluorescent and phosphorescent organic electroluminescent devices)

RN 333432-28-3 CAPLUS

CN Boronic acid, (9,9-dimethyl-9H-fluoren-2-yl)- (9CI) (CA INDEX NAME)



CC 73-11 (Optical, Electron, and Mass Spectroscopy and Other Related Properties)

Section cross-reference(s): 22, 72, 76

ST amorphous hole blocking org material synthesis; fluorescent phosphorescent **light emitting** device

IT LUMO (molecular orbital)

(HOMO gap; of organic hole blocking and **light-emitting** materials)

IT HOMO (molecular orbital)

(LUMO gap; of organic hole blocking and **light-emitting** materials)

IT Electronic excitation

Fluorescence

(absorption and fluorescence maxima of organic hole blocking and **light-emitting** materials)

IT Oxidation potential

(half-wave; of organic hole blocking and **light-**

- emitting materials)
- IT Luminescence, electroluminescence  
(of electroluminescent devices containing organic hole blocking and light-emitting materials)
- IT Glass transition temperature  
HOMO (molecular orbital)  
LUMO (molecular orbital)  
(of organic hole blocking and light-emitting materials)
- IT Half wave potential  
(oxidation; of organic hole blocking and light-emitting materials)
- IT 6326-64-3P 372956-40-6P 441352-90-5P  
441352-91-6P  
(hole blocking material; synthesis of organic hole-blocking amorphous mol. materials and application in fluorescent and phosphorescent organic electroluminescent devices)
- IT 65181-78-4, TPD  
(light emitting material; synthesis of organic hole-blocking amorphous mol. materials and application in fluorescent and phosphorescent organic electroluminescent devices)
- IT 134008-76-7P 165320-27-4P 246857-02-3P  
(light emitting material; synthesis of organic hole-blocking amorphous mol. materials and application in fluorescent and phosphorescent organic electroluminescent devices)
- IT 144981-85-1P, 9,9-Dimethyl-2-iodofluorene  
(reactant for synthesis of F2PA; synthesis of organic hole-blocking amorphous mol. materials and application in fluorescent and phosphorescent organic electroluminescent devices)
- IT 16218-28-3P, 2,7-Diiodofluorene 355832-04-1P,  
N-(9,9-Dimethylfluoren-2-yl)aniline  
(reactant for synthesis of PFFA; synthesis of organic hole-blocking amorphous mol. materials and application in fluorescent and phosphorescent organic electroluminescent devices)
- IT 86-73-7, Fluorene  
(synthesis of 2-iodofluorene, 2,7-diiodofluorene; synthesis of organic hole-blocking amorphous mol. materials and application in fluorescent and phosphorescent organic electroluminescent devices)
- IT 2523-42-4P, 2-Iodofluorene  
(synthesis of 9,9-dimethyl-2-iodofluorene, 9,9-dimethyl-2,7-diiodofluorene; synthesis of organic hole-blocking amorphous mol. materials and application in fluorescent and phosphorescent organic electroluminescent devices)
- IT 144981-86-2P, 9,9-Dimethyl-2,7-diiodofluorene  
(synthesis of N-(9,9-Dimethylfluoren-2-yl)aniline; synthesis of organic hole-blocking amorphous mol. materials and application in fluorescent and phosphorescent organic electroluminescent devices)
- IT 333432-28-3

(synthesis of TFB, TFPB; synthesis of organic hole-blocking amorphous mol. materials and application in fluorescent and phosphorescent organic electroluminescent devices)

REFERENCE COUNT: 45 THERE ARE 45 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L40 ANSWER 37 OF 65 CAPLUS COPYRIGHT 2005 ACS on STN

ACCESSION NUMBER: 2002:978186 CAPLUS

DOCUMENT NUMBER: 138:63633

TITLE: Organic electroluminescent device containing dispersion dopant in the emitting layer

INVENTOR(S): Furugori, Manabu; Okada, Shinjiro; Tsuboyama, Akira; Takiguchi, Takao; Miura, Seishi; Moriyama, Takashi; Igawa, Satoshi; Kamatani, Jun; Iwawaki, Hironobu

PATENT ASSIGNEE(S): Canon Kabushiki Kaisha, Japan

SOURCE: PCT Int. Appl., 47 pp.

CODEN: PIXXD2

DOCUMENT TYPE: Patent

LANGUAGE: Japanese

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2002104080	A1	20021227	WO 2002-JP5891	2002 0613
W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, OM, PH, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VN, YU, ZA, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG				
JP 2003068465	A2	20030307	JP 2002-143441	2002 0517
JP 2003068466	A2	20030307	JP 2002-143442	2002 0517

JP 2003068461 A2 20030307 JP 2002-143443 2002  
0517

EP 1399002 A1 20040317 EP 2002-738680 2002  
0613

R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE,  
MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR  
US 2003141809 A1 20030731 US 2002-207843

2002  
0731

US 6838818 B2 20050104  
PRIORITY APPLN. INFO.: JP 2001-181416 A 2001  
0615

JP 2002-143441 A 2002  
0517

JP 2002-143442 A 2002  
0517

JP 2002-143443 A 2002  
0517

WO 2002-JP5891 W 2002  
0613

AB The invention refers to an organic electroluminescent device comprising an emitting material and a dopant for improving dispersion in the emitting **layer**, wherein the dopant can be a combination of an emitting compound and a non-emitting compound, or can be a current promoting material. When the dopant contains an emitting compound, the emission wavelength of the dopant is similar to that of the main emitting material. The emitting material and the dopant are placed in the evaporation boat together

for

improved dispersion of the emitting material, improved emission efficiency and long life.

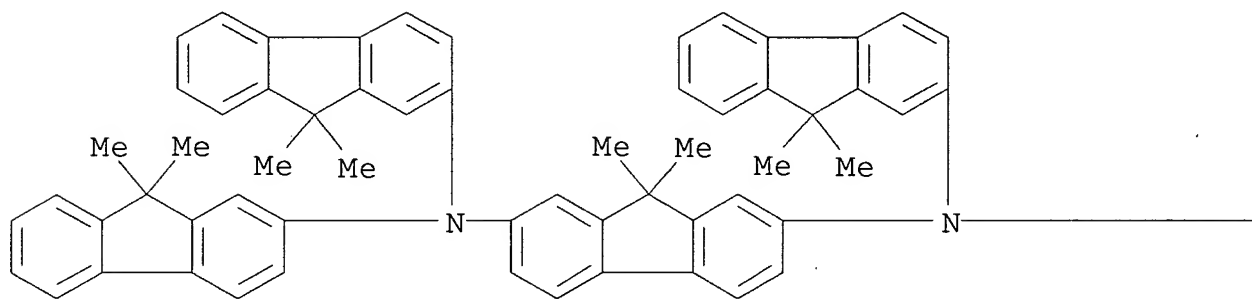
IT 216454-35-2 479408-26-9  
(organic electroluminescent device containing dispersion dopant in emitting **layer**)

RN 216454-35-2 CAPLUS

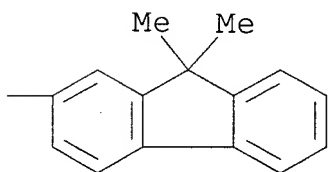
CN 9H-Fluorene-2,7-diamine, N,N,N',N'-tetrakis(9,9-dimethyl-9H-

fluoren-2-yl)-9,9-dimethyl- (9CI) (CA INDEX NAME)

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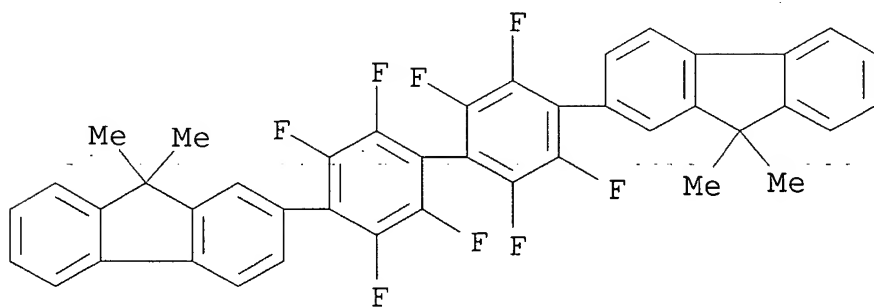


PAGE 1-B



RN 479408-26-9 CAPLUS

CN 9H-Fluorene, 2,2'-(2,2',3,3',5,5',6,6'-octafluoro[1,1'-biphenyl]-4,4'-diyl)bis[9,9-dimethyl- (9CI) (CA INDEX NAME)



IC ICM H05B033-14  
ICS C09K011-06



CC 73-11 (Optical, Electron, and Mass Spectroscopy and  
Other Related Properties)  
ST org electroluminescence device **luminescent** material  
IT **Luminescent** substances  
(organic electroluminescent device)  
IT Electroluminescent devices  
(organic electroluminescent device containing dispersion dopant in  
emitting **layer**)  
IT 15082-28-7, Pbd 51325-91-8, DCM 58328-31-7 83054-80-2  
123847-85-8,  $\alpha$ -Npd 124729-98-2 150405-69-9, TAZ  
184679-88-7 **216454-35-2** 405289-74-9 405289-77-2  
435293-93-9 435294-06-7 459133-46-1 **479408-26-9**  
(organic electroluminescent device containing dispersion dopant in  
emitting **layer**)

REFERENCE COUNT: 22 THERE ARE 22 CITED REFERENCES AVAILABLE  
FOR THIS RECORD. ALL CITATIONS AVAILABLE  
IN THE RE FORMAT

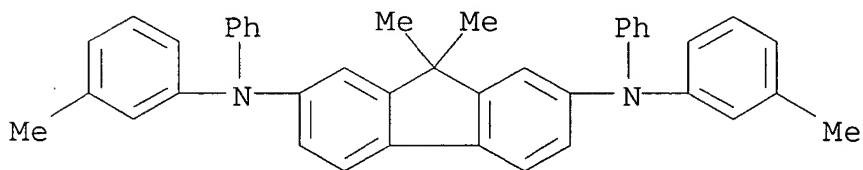
L40 ANSWER 38 OF 65 CAPLUS COPYRIGHT 2005 ACS on STN  
ACCESSION NUMBER: 2002:889345 CAPLUS  
DOCUMENT NUMBER: 137:377274  
TITLE: Charge injection type **light**  
**emitting** device  
INVENTOR(S): Hashimoto, Yuichi; Kawai, Tatsundo; Ueno,  
Kazunori  
PATENT ASSIGNEE(S): Canon K. K., Japan  
SOURCE: U.S. Pat. Appl. Publ., 10 pp.  
CODEN: USXXCO  
DOCUMENT TYPE: Patent  
LANGUAGE: English  
FAMILY ACC. NUM. COUNT: 1  
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
-----	----	-----	-----	
US 2002171358	A1	20021121	US 2002-96311	2002 0313
US 6664731	B2	20031216		
JP 2002343575	A2	20021129	JP 2002-59780	2002 0306
PRIORITY APPLN. INFO.:			JP 2001-73454	A 2001 0315
			JP 2002-59780	A

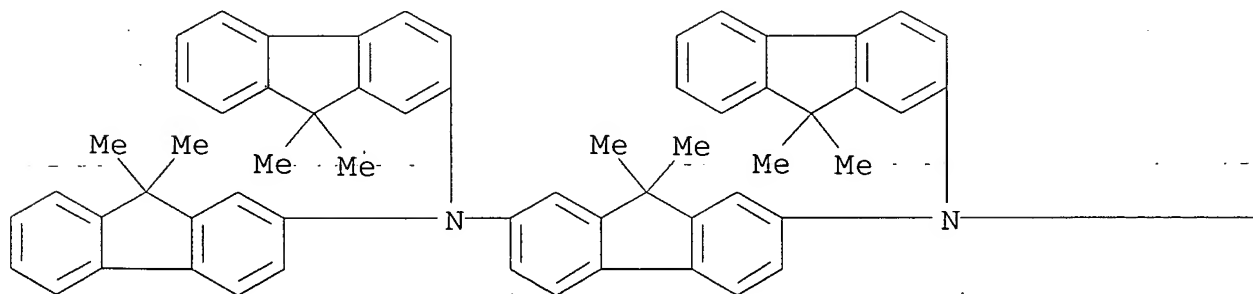
2002

0306

- AB Charge injection **light-emitting** devices comprising a pos. electrode, a neg. electrode, and an organic film sandwiched between the electrodes and composed of  $\geq 1$  organic compds., the organic film containing  $\geq 1$  **light-emitting layer** are described in which the potential barrier to electrons between the **light-emitting layer** and a barrier layer is  $\geq 0.5$  eV. Preferably, the **light-emitting** material contains a hydrocarbon compound having a condensed ring and the barrier material is formed from a hole-transporting compound
- IT 143886-11-7 216454-35-2 349666-25-7  
361486-60-4  
(charge injection **light-emitting** devices)
- RN 143886-11-7 CAPLUS
- CN 9H-Fluorene-2,7-diamine, 9,9-dimethyl-N,N'-bis(3-methylphenyl)-N,N'-diphenyl- (9CI) (CA INDEX NAME)

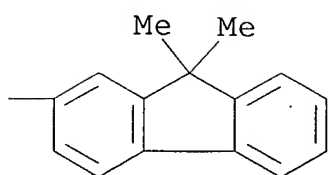


- RN 216454-35-2 CAPLUS
- CN 9H-Fluorene-2,7-diamine, N,N,N',N'-tetrakis(9,9-dimethyl-9H-fluoren-2-yl)-9,9-dimethyl- (9CI) (CA INDEX NAME)



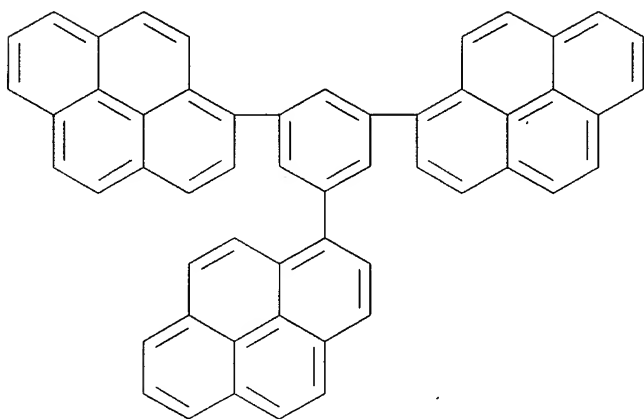
PAGE 1-A

PAGE 1-B



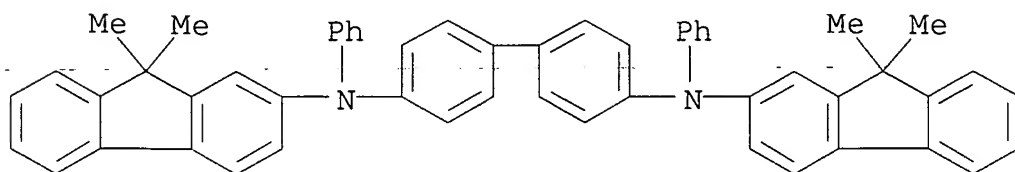
RN 349666-25-7 CAPLUS

CN Pyrene, 1,1',1''-(1,3,5-benzenetriyl)tris- (9CI) (CA INDEX NAME)



RN 361486-60-4 CAPLUS

CN [1,1'-Biphenyl]-4,4'-diamine, N,N'-bis(9,9-dimethyl-9H-fluoren-2-yl)-N,N'-diphenyl- (9CI) (CA INDEX NAME)



IC H05B033-00

NCL 313504000

CC 73-11 (Optical, Electron, and Mass Spectroscopy and

Other Related Properties)

Section cross-reference(s): 76

ST charge injection **light emitting** device

IT Electroluminescent devices

(organic; charge injection **light-emitting**  
devices)

IT 2085-33-8, Tris(8-hydroxyquinolinato)aluminum 14285-65-5,

Gallium phthalocyanine 65181-78-4 123847-85-8

143886-11-7 216454-35-2 349666-25-7

361486-60-4

(charge injection **light-emitting** devices)

L40 ANSWER 39 OF 65 . CAPLUS COPYRIGHT 2005 ACS on STN

ACCESSION NUMBER: 2002:698417 CAPLUS

DOCUMENT NUMBER: 137:330598

TITLE: Diaminoanthracene Derivatives as  
High-Performance Green Host Electroluminescent  
Materials

AUTHOR(S): Yu, Ming-Xin; Duan, Jiun-Pey; Lin, Chien-Hong;  
Cheng, Chien-Hong; Tao, Yu-Tai

CORPORATE SOURCE: Department of Chemistry, Tsing Hua University,  
Hsinchu, 300, Taiwan

SOURCE: Chemistry of Materials (2002), 14(9),  
3958-3963

CODEN: CMATEX; ISSN: 0897-4756

PUBLISHER: American Chemical Society

DOCUMENT TYPE: Journal

LANGUAGE: English

AB Diaminoanthracene derivs. 9,10-bis(1-naphthylphenylamino)anthracene ( $\alpha$ -NPA), 9,10-bis(2-naphthylphenylamino)anthracene ( $\beta$ -NPA), 9,10-bis(m-tolylphenylamino)anthracene (TPA), and 9,10-bis(diphenylamino)anthracene (PPA) were conveniently synthesized from the corresponding diarylamine and 9,10-dibromoanthracene in the presence of Pd(OAc)<sub>2</sub>, tri-tert-butylphosphine, and sodium tert-butoxide in o-xylene. Electroluminescent devices using  $\alpha$ -NPA,  $\beta$ -NPA, and PPA as the hole transporters and host emitters were made. Devices consisting of diaminoanthracene ( $\alpha$ -NPA,  $\beta$ -NPA, or PPA)/Alq<sub>3</sub> were shown to emit intensive green light from the diaminoanthracene **layer** instead of the Alq<sub>3</sub> **layer**. The device performance can be further improved by employing CuPc as the hole-injection **layer**,  $\alpha$ -NPB or m-MTDATA as the hole-transporting **layer**, and Alq<sub>3</sub> or TPBI as the electron-transporting **layer**. Very high brightness, current, and power efficiencies and excellent CIE coordinates can be achieved by a suitable combination of these **layers**. For example, device K, which consists of m-MTDATA(20 nm)/ $\beta$ -NPA(40 nm)/TPBI(50 nm), emits green light

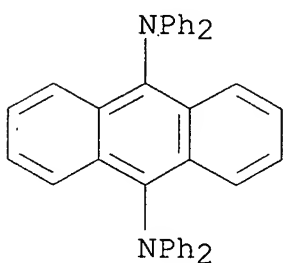
at 530 nm and shows a maximum external quantum efficiency of 3.68%, current efficiency of 14.79 cd/A, power efficiency of 7.76 lm/W, and maximum brightness of 64991 cd/m<sup>2</sup>.

IT 177799-11-0P 177799-14-3P 473717-08-7P

(diaminoanthracene derivs. as high-performance green host electroluminescent materials)

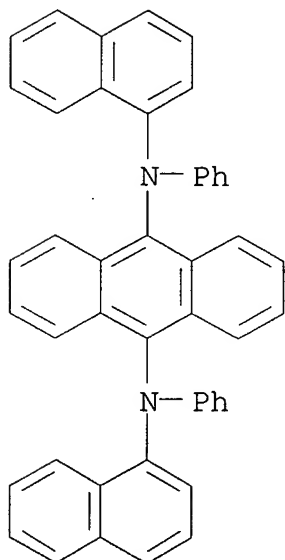
RN 177799-11-0 CAPLUS

CN 9,10-Anthracenediamine, N,N,N',N'-tetraphenyl- (9CI) (CA INDEX NAME)



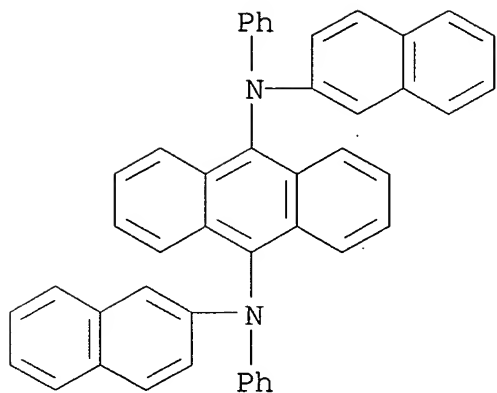
RN 177799-14-3 CAPLUS

CN 9,10-Anthracenediamine, N,N'-di-1-naphthalenyl-N,N'-diphenyl- (9CI) (CA INDEX NAME)



RN 473717-08-7 CAPLUS

CN 9,10-Anthracenediamine, N,N'-di-2-naphthalenyl-N,N'-diphenyl- (9CI) (CA INDEX NAME)

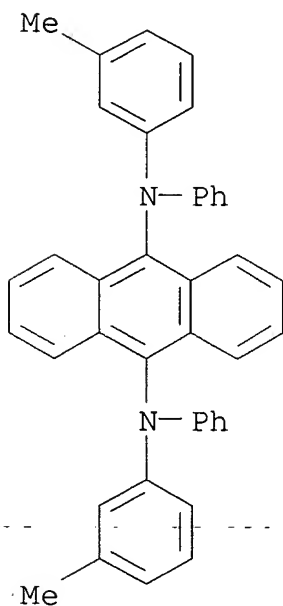


IT 189263-81-8P

(diaminoanthracene derivs. as high-performance green host  
electroluminescent materials)

RN 189263-81-8 CAPLUS

CN 9,10-Anthracenediamine, N,N'-bis(3-methylphenyl)-N,N'-diphenyl-  
(9CI) (CA INDEX NAME)

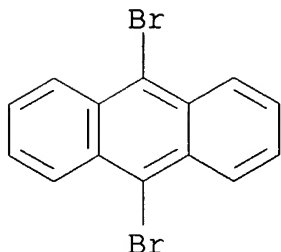


IT 523-27-3, 9,10-Dibromoanthracene

(diaminoanthracene derivs. as high-performance green host  
electroluminescent materials and their synthesis using)

RN 523-27-3 CAPLUS

CN Anthracene, 9,10-dibromo- (6CI, 8CI, 9CI) (CA INDEX NAME)



- CC 73-5 (**Optical**, Electron, and Mass Spectroscopy and Other Related Properties)  
Section cross-reference(s): 22, 25, 76
- ST diaminoanthracene deriv green electroluminescent material device  
**luminescence** absorption synthesis; naphthylphenylamino anthracene NPA green **luminescence** synthesis  
electroluminescence device; tolylphenylamino anthracene TPA green **luminescence** synthesis absorption; diphenylamino anthracene PPA green **luminescence** synthesis  
electroluminescence device
- IT **Luminescent** substances  
(electroluminescent, green-emitting; diaminoanthracene derivs. as high-performance green host electroluminescent materials)
- IT **Luminescence**, electroluminescence  
(of electroluminescent devices employing diaminoanthracene derivs. as high-performance green host electroluminescent materials)
- IT **Luminescence**  
(visible; of diaminoanthracene derivs. as high-performance green host electroluminescent materials)
- IT 7440-22-4, Silver, uses  
(cathode capping **layer**; electroluminescent devices employing diaminoanthracene derivs. as high-performance green host electroluminescent materials and containing)
- IT **177799-11-0P 177799-14-3P 473717-08-7P**  
(diaminoanthracene derivs. as high-performance green host electroluminescent materials)
- IT **189263-81-8P**  
(diaminoanthracene derivs. as high-performance green host electroluminescent materials)
- IT 90-30-2, N-Phenyl-1-naphthylamine 122-39-4, Diphenylamine, reactions 135-88-6, N-Phenyl-2-naphthylamine **523-27-3**, 9,10-Dibromoanthracene 1205-64-7, 3-Methyl diphenylamine  
(diaminoanthracene derivs. as high-performance green host electroluminescent materials and their synthesis using)

IT 192198-85-9, TPBI  
(electron-transporting **layer**; electroluminescent  
devices employing diaminoanthracene derivs. as high-performance  
green host electroluminescent materials and containing)

IT 2085-33-8, Alq3  
(electron-transporting **layer**; electroluminescent  
devices employing diaminoanthracene derivs. as high-performance  
green host electroluminescent materials and containing)

IT 123847-85-8, NPB  
(hole-transporting **layer**; electroluminescent devices  
employing diaminoanthracene derivs. as high-performance green  
host electroluminescent materials and containing)

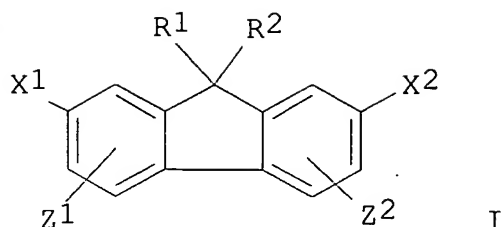
REFERENCE COUNT: 36 THERE ARE 36 CITED REFERENCES AVAILABLE  
FOR THIS RECORD. ALL CITATIONS AVAILABLE  
IN THE RE FORMAT

L40 ANSWER 40 OF 65 CAPLUS COPYRIGHT 2005 ACS on STN  
ACCESSION NUMBER: 2002:672238 CAPLUS  
DOCUMENT NUMBER: 137:208163  
TITLE: Fluorene derivatives and long-life organic  
electroluminescent devices therewith  
INVENTOR(S): Totani, Yoshiyuki; Shimamura, Takehiko;  
Tanabe, Yoshimitsu; Ishida, Tsutomu;  
Nakatsuka, Masakatsu  
PATENT ASSIGNEE(S): Mitsui Chemicals Inc., Japan  
SOURCE: Jpn. Kokai Tokkyo Koho, 22 pp.  
CODEN: JKXXAF  
DOCUMENT TYPE: Patent  
LANGUAGE: Japanese  
FAMILY ACC. NUM. COUNT: 1  
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
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JP 2002249484	A2	20020906	JP 2001-47638	2001 0223
PRIORITY APPLN. INFO.: JP 2001-47638				2001 0223

OTHER SOURCE(S): MARPAT 137:208163  
GI



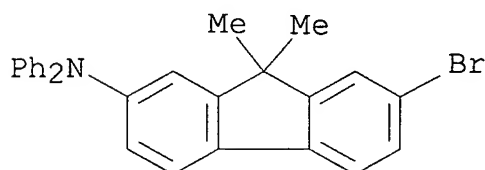


AB Fluorene derivs. I [X1 = (10,11-dihydro-)N-dibenzo[b, f]azepinyl; X2 = (10,11-dihydro-)N-dibenzo[b, f]azepinyl, N-carbazolyl, N-phenothiazyl, N-phenoxazinyl, NAr1Ar2 (Ar1, Ar2 = aryl); R1, R2 = H, alkyl, aryl, aralkyl; Z1, Z2 = H, halo, alkyl(oxy), aryl] and organic electroluminescent devices including I in (emission layers or hole-transporting) layers between pair of electrodes, are claimed.

IT 302579-16-4P  
(in preparation of novel fluorene derivs. for long-life organic electroluminescent devices)

RN 302579-16-4 CAPLUS

CN 9H-Fluorene-2-amine, 7-bromo-9,9-dimethyl-N,N-diphenyl- (9CI) (CA INDEX NAME)

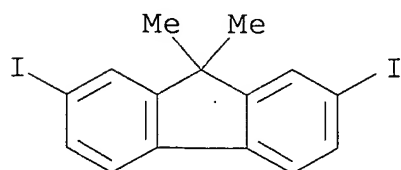


IT 144981-86-2, 2,7-Diiodo-9,9-dimethylfluorene  
319906-45-1 444578-49-8

(in preparation of novel fluorene derivs. for long-life organic electroluminescent devices)

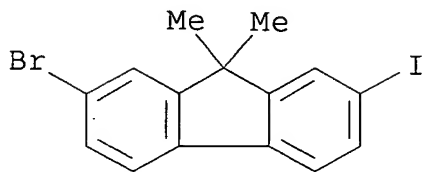
RN 144981-86-2 CAPLUS

CN 9H-Fluorene, 2,7-diiodo-9,9-dimethyl- (9CI) (CA INDEX NAME)



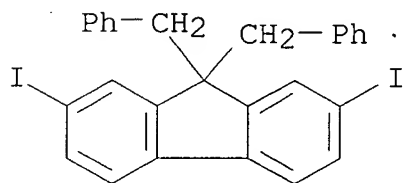
RN 319906-45-1 CAPLUS

CN 9H-Fluorene, 2-bromo-7-iodo-9,9-dimethyl- (9CI) (CA INDEX NAME)



RN 444578-49-8 CAPLUS

CN 9H-Fluorene, 2,7-diiodo-9,9-bis(phenylmethyl)- (9CI) (CA INDEX NAME)



IT 453590-73-3P 453590-74-4P 453590-75-5P

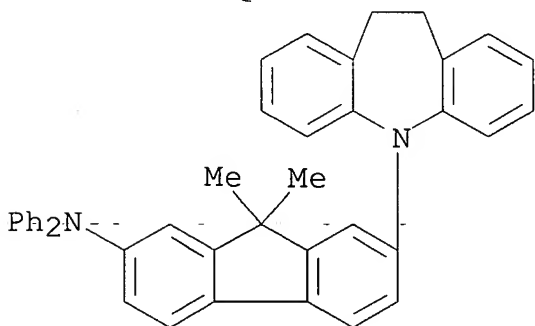
453590-76-6P 453590-77-7P 453590-80-2P

453590-81-3P 453590-82-4P 453590-83-5P

(long-life organic electroluminescent devices containing novel fluorene derivs.)

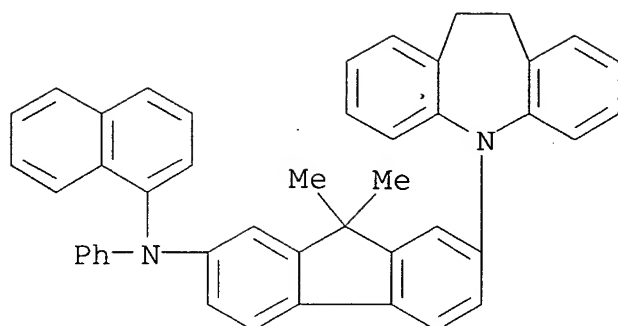
RN 453590-73-3 CAPLUS

CN 9H-Fluoren-2-amine, 7-(10,11-dihydro-5H-dibenz[b,f]azepin-5-yl)-9,9-dimethyl-N,N-diphenyl- (9CI) (CA INDEX NAME)



RN 453590-74-4 CAPLUS

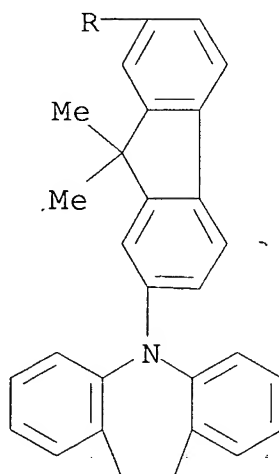
CN 9H-Fluoren-2-amine, 7-(10,11-dihydro-5H-dibenz[b,f]azepin-5-yl)-9,9-dimethyl-N-1-naphthalenyl-N-phenyl- (9CI) (CA INDEX NAME)



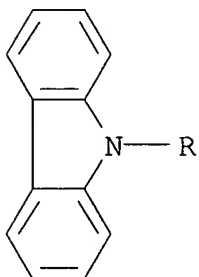
RN 453590-75-5 CAPLUS

CN 5H-Dibenz[b,f]azepine, 5-[7-(9H-carbazol-9-yl)-9,9-dimethyl-9H-fluoren-2-yl]-10,11-dihydro- (9CI) (CA INDEX NAME)

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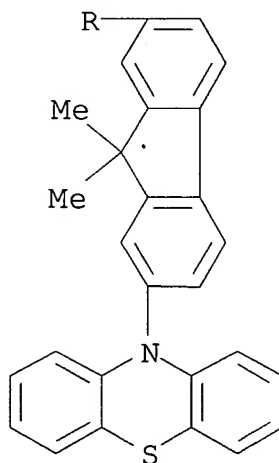


PAGE 2-A

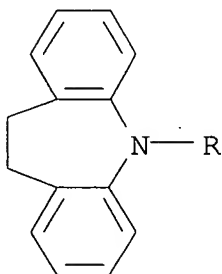


RN 453590-76-6 CAPLUS  
CN 5H-Dibenz[b,f]azepine, 5-[9,9-dimethyl-7-(10H-phenothiazin-10-yl)-  
9H-fluoren-2-yl]-10,11-dihydro- (9CI) (CA INDEX NAME)

PAGE 1-A



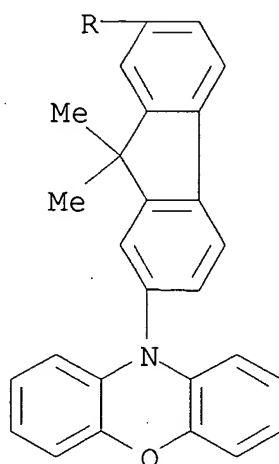
PAGE 2-A



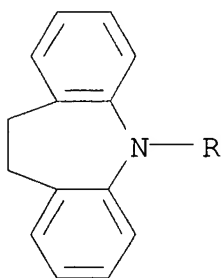
RN 453590-77-7 CAPLUS

CN 5H-Dibenz[b,f]azepine, 5-[9,9-dimethyl-7-(10H-phenoxazin-10-yl)-9H-fluoren-2-yl]-10,11-dihydro- (9CI) (CA INDEX NAME)

PAGE 1-A



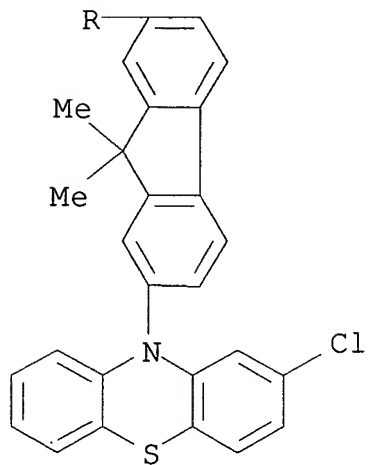
PAGE 2-A



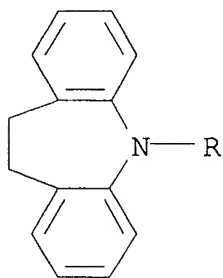
RN 453590-80-2 CAPLUS

CN 5H-Dibenz[b,f]azepine, 5-[7-(2-chloro-10H-phenothiazin-10-yl)-9,9-dimethyl-9H-fluoren-2-yl]-10,11-dihydro- (9CI) (CA INDEX NAME)

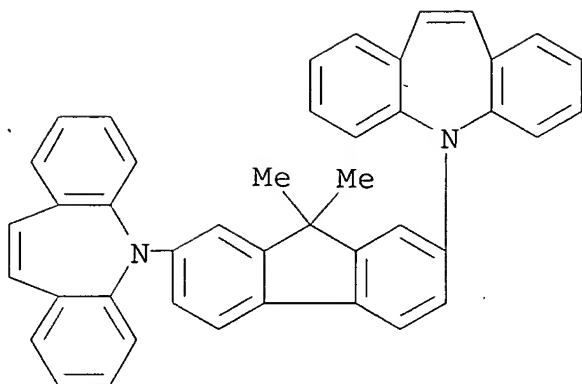
PAGE 1-A



PAGE 2-A

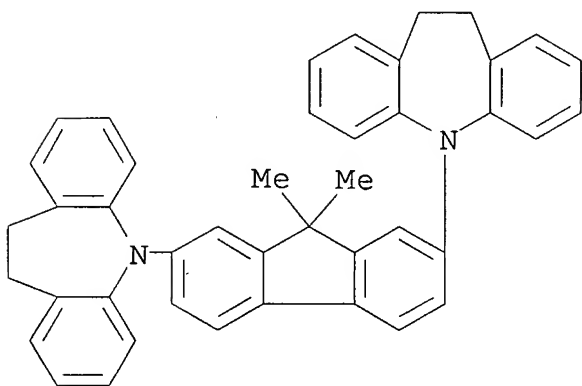


RN 453590-81-3 CAPLUS  
 CN 5H-Dibenz[b,f]azepine, 5,5'-(9,9-dimethyl-9H-fluorene-2,7-diyl)bis-(9CI) (CA INDEX NAME)



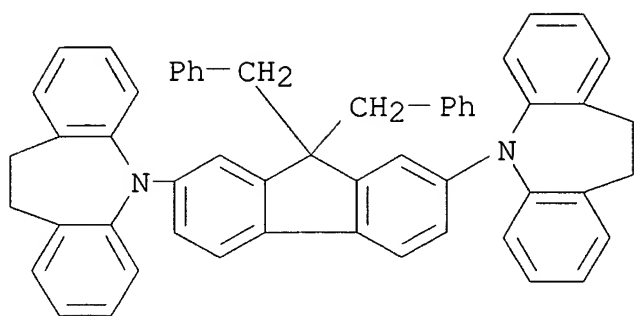
RN 453590-82-4 CAPLUS

CN 5H-Dibenz[b,f]azepine, 5,5'-(9,9-dimethyl-9H-fluorene-2,7-diyl)bis[10,11-dihydro- (9CI) (CA INDEX NAME)



RN 453590-83-5 CAPLUS

CN 5H-Dibenz[b,f]azepine, 5,5'-(9,9-bis(phenylmethyl)-9H-fluorene-2,7-diyl)bis[10,11-dihydro- (9CI) (CA INDEX NAME)



- IC ICM C07D223-28  
ICS C07D403-10; C07D413-10; C07D417-10; C09K011-06; H05B033-14;  
H05B033-22
- CC 73-11 (**Optical**, Electron, and Mass Spectroscopy and  
Other Related Properties)  
Section cross-reference(s): 27
- IT **Luminescent** substances  
(electroluminescent; long-life organic electroluminescent devices  
containing novel fluorene derivs.)
- IT **302579-16-4P**  
(in preparation of novel fluorene derivs. for long-life organic  
electroluminescent devices)
- IT 86-74-8, Carbazole 90-30-2 92-39-7, 2-Chlorophenothiazine  
92-84-2, Phenothiazine 122-39-4, N,N-Diphenylamine, reactions  
135-67-1, Phenoxazine 256-96-2, 5H-Dibenzo[b,f]azepine  
494-19-9, 10,11-Dihydro-5H-dibenzo[b,f]azepine **144981-86-2**  
, 2,7-Diiodo-9,9-dimethylfluorene **319906-45-1**  
**444578-49-8**  
(in preparation of novel fluorene derivs. for long-life organic  
electroluminescent devices)
- IT **453590-73-3P 453590-74-4P 453590-75-5P**  
**453590-76-6P 453590-77-7P 453590-80-2P**  
**453590-81-3P 453590-82-4P 453590-83-5P**  
(long-life organic electroluminescent devices containing novel  
fluorene derivs.)

L40 ANSWER 41 OF 65 CAPLUS COPYRIGHT 2005 ACS on STN  
ACCESSION NUMBER: 2002:638080 CAPLUS  
DOCUMENT NUMBER: 137:176925  
TITLE: Organic light emitting  
device and display device using the same  
INVENTOR(S): Seo, Satoshi; Yamazaki, Shunpei  
PATENT ASSIGNEE(S): Japan  
SOURCE: U.S. Pat. Appl. Publ., 45 pp.  
CODEN: USXXCO  
DOCUMENT TYPE: Patent



LANGUAGE: English  
 FAMILY ACC. NUM. COUNT: 1  
 PATENT INFORMATION:

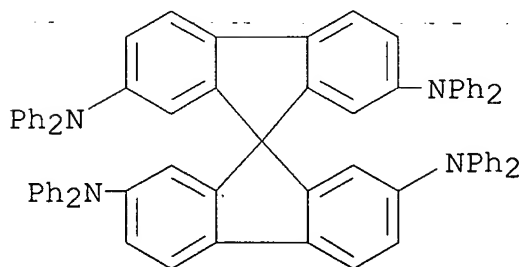
PATENT NO. -----	KIND ----	DATE -----	APPLICATION NO. -----	DATE
US 2002113546	A1	20020822	US 2002-81558	2002 0220
JP 2002324673	A2	20021108	JP 2002-43419	2002 0220
CN 1372434	A	20021002	CN 2002-105131	2002 0222
PRIORITY APPLN. INFO.:			JP 2001-45883	A 2001 0222

AB Organic **light-emitting** devices are described in which hole-transporting, **light-emitting**, and electron-transporting regions are joined by compositionally graded mixed regions. The devices avoid problems with interfaces between **layers** which are present in the conventional laminate structure. The devices may incorporate color conversion **layers** or color filters, and may be constructed to serve as displays. Electronic equipment (video cameras, digital cameras, image reproduction apparatus, portable computers, personal computers, and mobile telephones) employing the displays is also described.

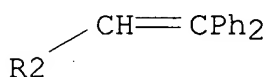
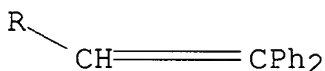
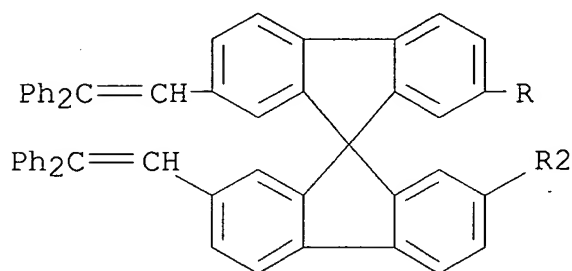
IT 189363-47-1 296269-66-4.  
 (organic **light emitting** devices with graded interfaces and electronic devices using them)

RN 189363-47-1 CAPLUS

CN 9,9'-Spirobi[9H-fluorene]-2,2',7,7'-tetramine,  
 N,N,N',N',N'',N'',N''',N''''-octaphenyl- (9CI) (CA INDEX NAME)



· RN 296269-66-4 CAPLUS  
 CN 9,9'-Spirobi[9H-fluorene], 2,2',7,7'-tetrakis(2,2-diphenylethenyl)-  
 (9CI) (CA INDEX NAME)



IC ICM H05B033-14  
 NCL 313504000  
 CC 73-11 (**Optical**, Electron, and Mass Spectroscopy and  
 Other Related Properties)  
 Section cross-reference(s): 76  
 ST org **light emitting** device graded interface  
 IT Electroluminescent devices  
 (displays, organic; organic **light emitting**  
 devices with graded interfaces and electronic devices using  
 them)  
 IT **Luminescent** screens  
 (electroluminescent, organic; organic **light**  
**emitting** devices with graded interfaces and electronic  
 devices using them)  
 IT Electroluminescent devices  
 (organic; organic **light emitting** devices with  
 graded interfaces and electronic devices using them)  
 IT 198-55-0, Perylene 2085-33-8, Tris(8-hydroxyquinolinato)aluminum  
 4733-39-5, Bathocuproin 18115-70-3, Lithium acetylacetonate,  
 uses 19205-19-7, N,N'-Dimethylquinacridone 51325-91-8,  
 4-(Dicyanomethylene)-2-methyl-6-(p-dimethylaminostyryl)-4H-pyran  
 58280-31-2 65181-78-4, 4,4'-Bis[N-(3-methylphenyl)-N-

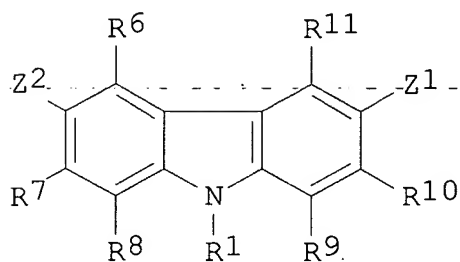
phenylamino]biphenyl 123847-85-8, 4,4'-Bis-[N-(1-naphthyl)-N-phenylamino]biphenyl 124729-98-2, 4,4',4'''-Tris[N-(3-methylphenyl)-N-phenylamino]triphenyl amine 146162-54-1  
**189363-47-1 296269-66-4**

(organic **light emitting** devices with graded interfaces and electronic devices using them)

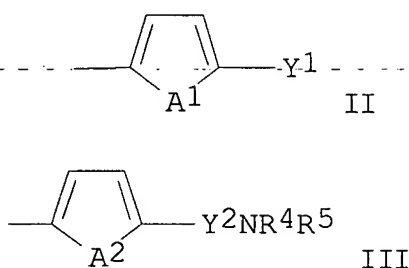
L40 ANSWER 42 OF 65 CAPLUS COPYRIGHT 2005 ACS on STN  
 ACCESSION NUMBER: 2002:595531 CAPLUS  
 DOCUMENT NUMBER: 137:161221  
 TITLE: 3,6,9-trisubstituted carbazoles for **light emitting** diodes  
 INVENTOR(S): Lin, Jiann T'suen; Thomas, K. R. Justin; Tao, Yu-tai; Ko, Chung-wen  
 PATENT ASSIGNEE(S): Academia Sinica, Taiwan  
 SOURCE: U.S. Pat. Appl. Publ., 10 pp.  
 CODEN: USXXCO  
 DOCUMENT TYPE: Patent  
 LANGUAGE: English  
 FAMILY ACC. NUM. COUNT: 1  
 PATENT INFORMATION:

PATENT NO. -----	KIND ----	DATE -----	APPLICATION NO. -----	DATE
US 2002107405	A1	20020808	US 2001-990576	2001 1121
US 6649772	B2	20031118	US 2000-252804P	P 2000 1122
PRIORITY APPLN. INFO.:				

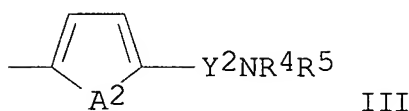
OTHER SOURCE(S): MARPAT 137:161221  
 GI



I



II



III

AB Compds. are described by the general formula I (Z1 and Z2 = independently selected -N(R2)R3, II, and III; A1 and A2 = independently selected S, O, NR, or CH:CH; Y1, Y2 and R1-5 = independently selected aryl or heteroaryl groups; R6-11 = independently selected H, CN, alkyl, OR, NRR', COR, or C(O)OR; and R and R' = independently selected H or alkyl). Electroluminescent devices employing the compds. in hole-transporting and/or **light-emitting layers** are also described.

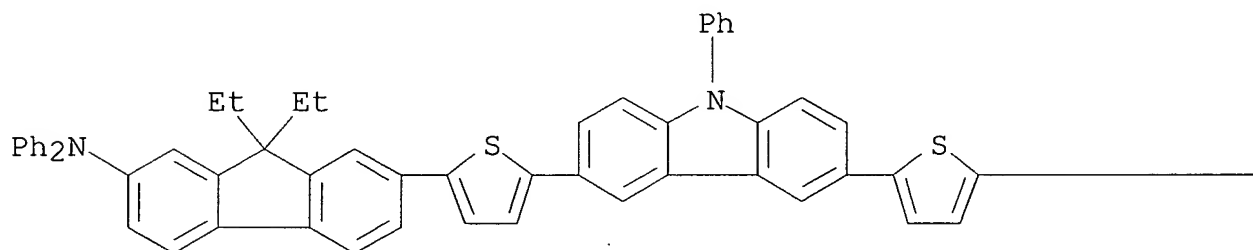
IT 410547-42-1

(carbazole derivs. and **light-emitting**  
diodes using them)

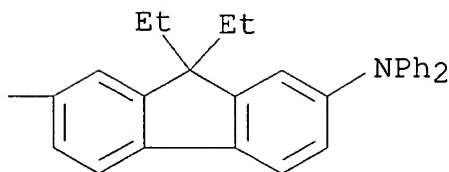
RN 410547-42-1 CAPLUS

CN 9H-Fluoren-2-amine, 7,7'-[(9-phenyl-9H-carbazole-3,6-diyl)di-5,2-thiophenediyl]bis[9,9-diethyl-N,N-diphenyl- (9CI) (CA INDEX NAME)

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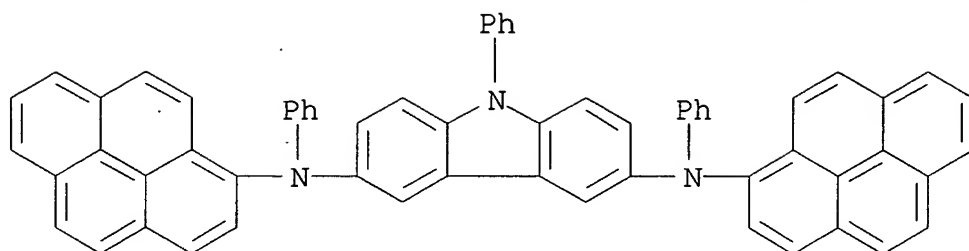


IT 340162-05-2P 340162-07-4P 340162-08-5P

(carbazole derivs. and **light-emitting**  
diodes using them)

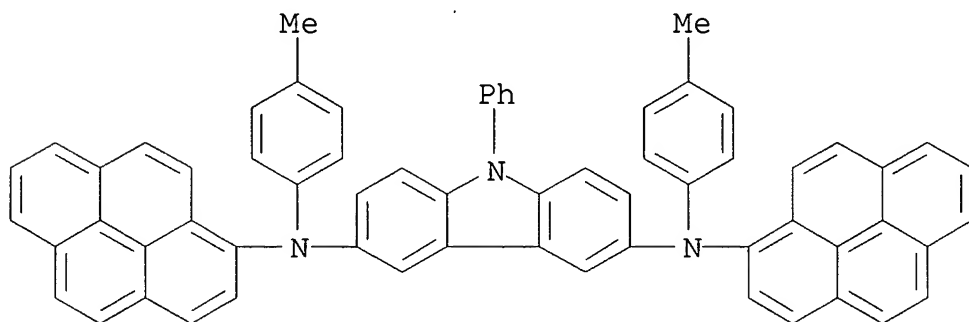
RN 340162-05-2 CAPLUS

CN 9H-Carbazole-3,6-diamine, N,N',9-triphenyl-N,N'-di-1-pyrenyl- (9CI) (CA INDEX NAME)



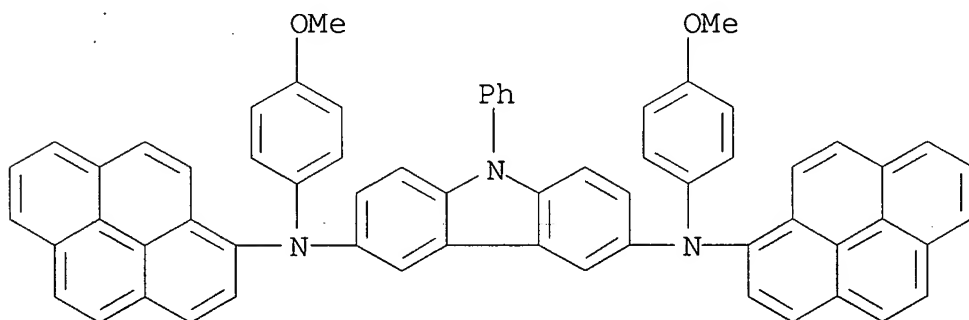
RN 340162-07-4 CAPLUS

CN 9H-Carbazole-3,6-diamine, N,N'-bis(4-methylphenyl)-9-phenyl-N,N'-di-1-pyrenyl- (9CI) (CA INDEX NAME)



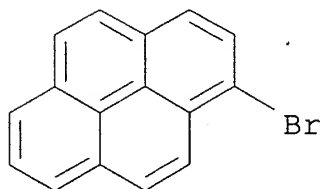
RN 340162-08-5 CAPLUS

CN 9H-Carbazole-3,6-diamine, N,N'-bis(4-methoxyphenyl)-9-phenyl-N,N'-di-1-pyrenyl- (9CI) (CA INDEX NAME)

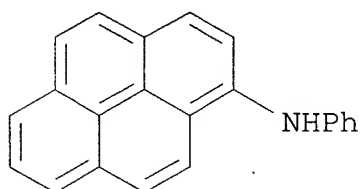


IT 1714-29-0, 1-Bromopyrene  
(carbazole derivs. and light-emitting diodes using them)

RN 1714-29-0 CAPLUS  
CN Pyrene, 1-bromo- (6CI, 7CI, 8CI, 9CI) (CA INDEX NAME)



IT 65838-93-9P  
(carbazole derivs. and light-emitting diodes using them)  
RN 65838-93-9 CAPLUS  
CN 1-Pyrenamine, N-phenyl- (9CI) (CA INDEX NAME)



IC ICM C07D209-94  
NCL 548439000  
CC 73-11 (Optical, Electron, and Mass Spectroscopy and Other Related Properties)  
Section cross-reference(s): 27, 76  
ST carbazole deriv light emitting diode  
IT Electroluminescent devices  
(organic; carbazole derivs. and light-emitting diodes using them)  
IT 2085-33-8, Tris(8-hydroxyquinoline)aluminum 37271-44-6  
50926-11-9, Indium tin oxide 192198-85-9 410547-40-9  
410547-41-0 410547-42-1 445255-64-1  
(carbazole derivs. and light-emitting diodes using them)  
IT 340162-05-2P 340162-07-4P 340162-08-5P  
410547-39-6P  
(carbazole derivs. and light-emitting diodes using them)  
IT 62-53-3, Phenylamine, reactions 1714-29-0, 1-Bromopyrene  
57103-20-5 445255-63-0  
(carbazole derivs. and light-emitting

diodes using them)  
IT 65838-93-9P  
(carbazole derivs. and light-emitting  
diodes using them)

L40 ANSWER 43 OF 65 CAPLUS COPYRIGHT 2005 ACS on STN

ACCESSION NUMBER: 2002:587825 CAPLUS

DOCUMENT NUMBER: 137:301792

TITLE: Green and Yellow Electroluminescent Dipolar  
Carbazole Derivatives: Features and Benefits  
of Electron-Withdrawing Segments

AUTHOR(S): Thomas, K. R. Justin; Lin, Jiann T.; Tao,  
Yu-Tai; Chuen, Chang-Hao

CORPORATE SOURCE: Institute of Chemistry, Academia Sinica,  
Nankang, 115, Taiwan

SOURCE: Chemistry of Materials (2002), 14(9),  
3852-3859

CODEN: CMATEX; ISSN: 0897-4756

PUBLISHER: American Chemical Society

DOCUMENT TYPE: Journal

LANGUAGE: English

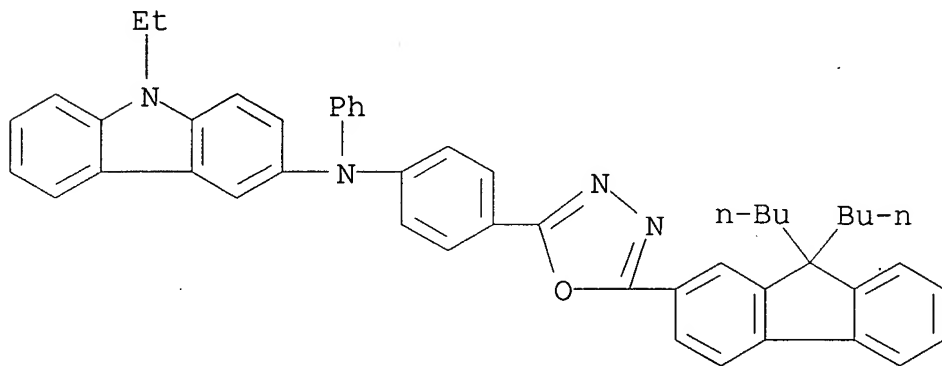
AB New multiply substituted carbazole derivs. containing fluorene or  
phenylene conjugated oxadiazole segments and quinoxaline units  
were obtained by Pd-catalyzed C-N coupling reactions. They are  
amorphous with the glass transition temperature (T<sub>g</sub>) in the range  
104-176°. The emission color of the materials varies from  
blue to yellow and is dependent on the nature of the  
electron-withdrawing segments and solvents. Two reversible  
1-electron oxidns. were observed for these mols. in cyclic  
voltammograms, which originate from the peripheral 3,6-diarylamino  
units in the 3,6,9-trisubstituted derivs. and diarylamine and  
carbazole segments in the 3,9-disubstituted compds. Redns.  
originating from quinoxaline segments were also located for the  
mols. incorporating quinoxaline moieties. The double-  
layer organic light-emitting diodes  
fabricated using these compds. as hole-transporting/emitting  
layers and TPBI or Alq3 as an electron-transporting  
layer emit bluish green to yellow colors. The  
recombination zone is restricted in the HTL layer for  
the quinoxaline-containing mols. irresp. of the electron-transporting  
layer used and emission occurs from them. However, for the  
oxadiazole derivs. emission in the Alq3-based devices is either  
red shifted or resembles that of Alq3. Cyclic voltammetric and  
spectroscopic data support more pronounced electron affinity for  
the quinoxaline-incorporated carbazole derivs. than for the  
oxadiazole-tethered carbazole materials.

IT 468062-28-4P 468062-29-5P 468062-30-8P  
468062-31-9P 468062-32-0P

(green and yellow electroluminescent dipolar carbazole derivs.  
and their electrochem. and spectral and **luminescent**  
properties affected by electron-withdrawing segments)

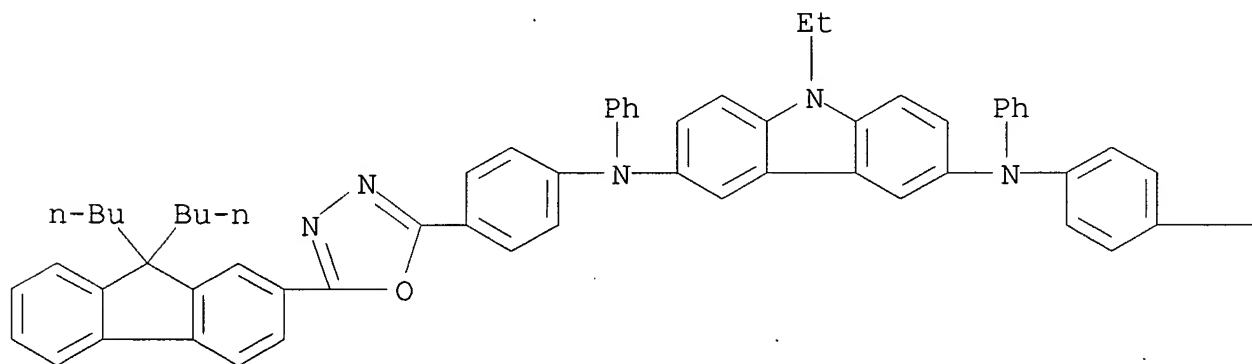
RN 468062-28-4 CAPLUS

CN 9H-Carbazol-3-amine, N-[4-[5-(9,9-dibutyl-9H-fluoren-2-yl)-1,3,4-oxadiazol-2-yl]phenyl]-9-ethyl-N-phenyl- (9CI) (CA INDEX NAME)



RN 468062-29-5 CAPLUS

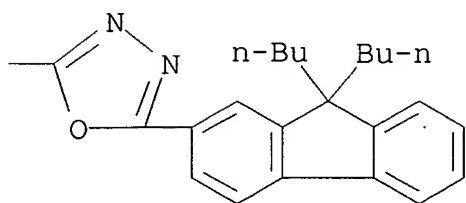
CN 9H-Carbazole-3,6-diamine, N,N'-bis[4-[5-(9,9-dibutyl-9H-fluoren-2-yl)-1,3,4-oxadiazol-2-yl]phenyl]-9-ethyl-N,N'-diphenyl- (9CI) (CA INDEX NAME)



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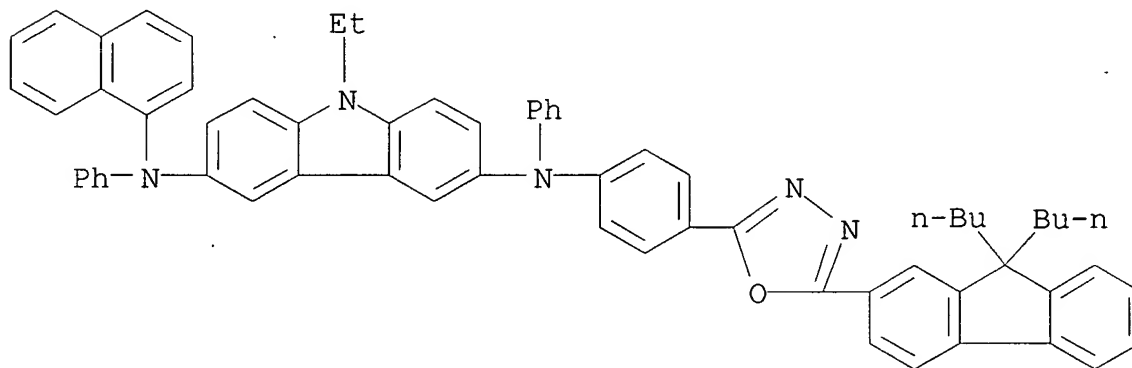


PAGE 1-B



RN 468062-30-8 CAPLUS

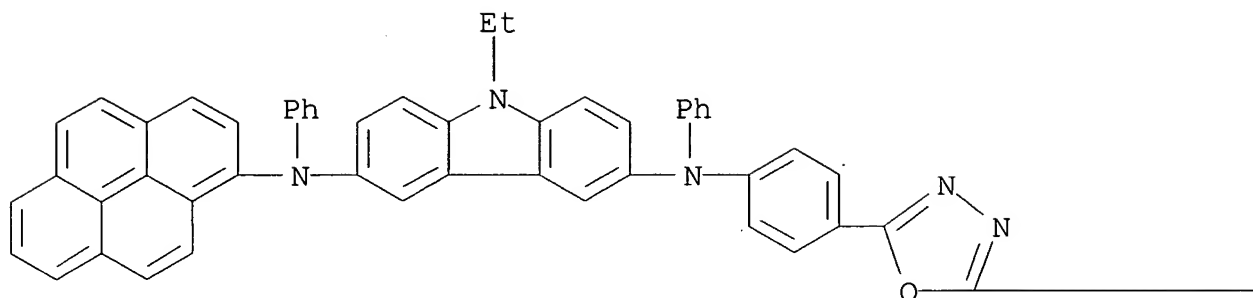
CN 9H-Carbazole-3,6-diamine, N-[4-[5-(9,9-dibutyl-9H-fluoren-2-yl)-1,3,4-oxadiazol-2-yl]phenyl]-9-ethyl-N'-1-naphthalenyl-N,N'-diphenyl- (9CI) (CA INDEX NAME)



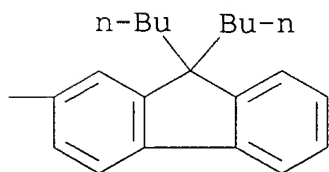
RN 468062-31-9 CAPLUS

CN 9H-Carbazole-3,6-diamine, N-[4-[5-(9,9-dibutyl-9H-fluoren-2-yl)-1,3,4-oxadiazol-2-yl]phenyl]-9-ethyl-N,N'-diphenyl-N'-1-pyrenyl- (9CI) (CA INDEX NAME)

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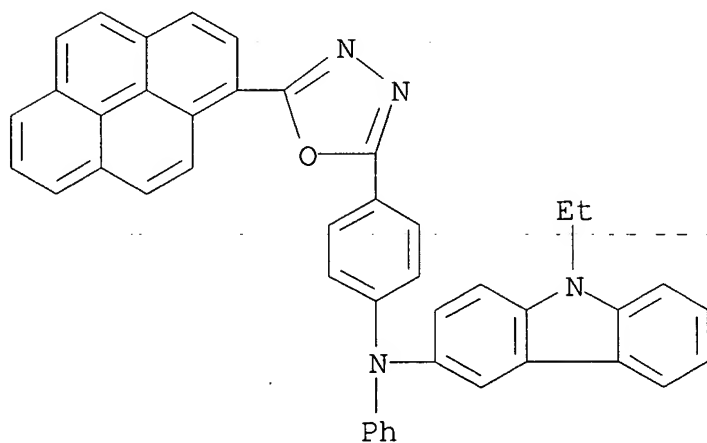


PAGE 1-B



RN 468062-32-0 CAPLUS

CN 9H-Carbazol-3-amine, 9-ethyl-N-phenyl-N-[4-[5-(1-pyrenyl)-1,3,4-oxadiazol-2-yl]phenyl]- (9CI) (CA INDEX NAME)



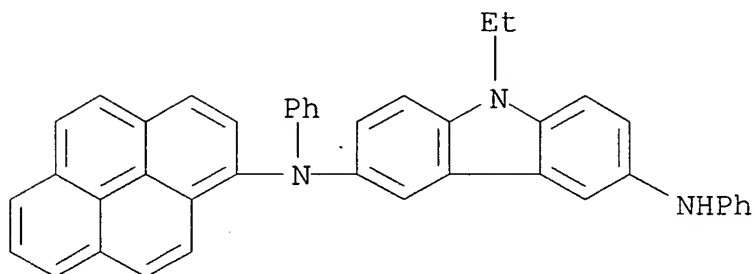
IT 468062-25-1 468062-33-1 468062-34-2

468062-35-3 468062-36-4 468062-37-5

(green and yellow electroluminescent dipolar carbazole derivs.  
and their electrochem. and spectral and **luminescent**  
properties affected by electron-withdrawing segments)

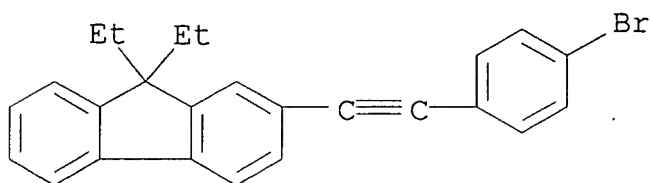
RN 468062-25-1 CAPLUS

CN 9H-Carbazole-3,6-diamine, 9-ethyl-N,N'-diphenyl-N-1-pyrenyl- (9CI)  
(CA INDEX NAME)



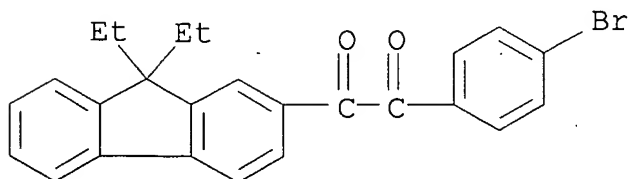
RN 468062-33-1 CAPLUS

CN 9H-Fluorene, 2-[(4-bromophenyl)ethynyl]-9,9-diethyl- (9CI) (CA  
INDEX NAME)



RN 468062-34-2 CAPLUS

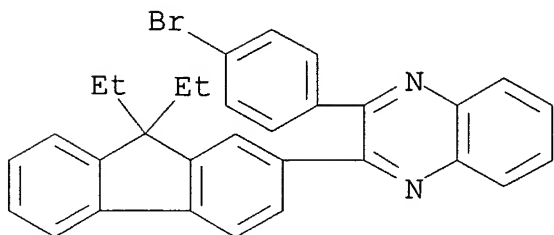
CN Ethanedione, (4-bromophenyl) (9,9-diethyl-9H-fluoren-2-yl)- (9CI)  
(CA INDEX NAME)



RN 468062-35-3 CAPLUS

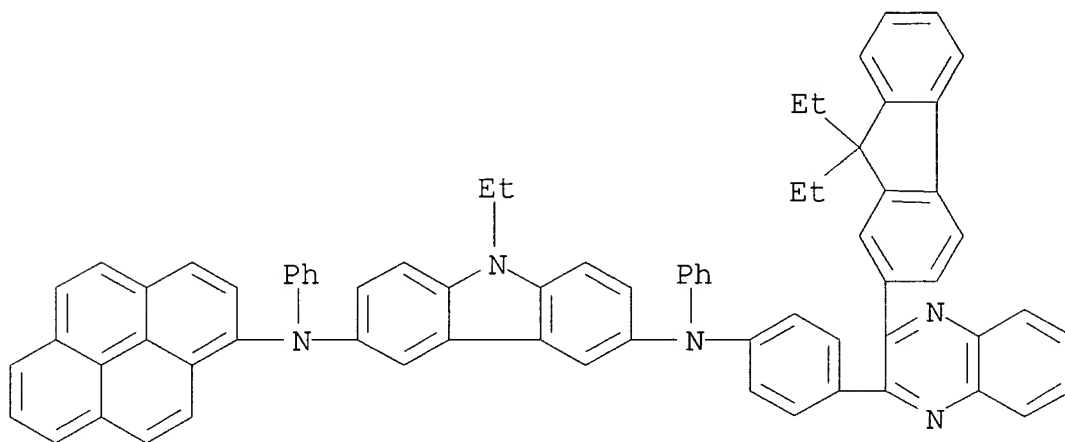
CN Quinoxaline, 2-(4-bromophenyl)-3-(9,9-diethyl-9H-fluoren-2-yl)-

(9CI) (CA INDEX NAME)



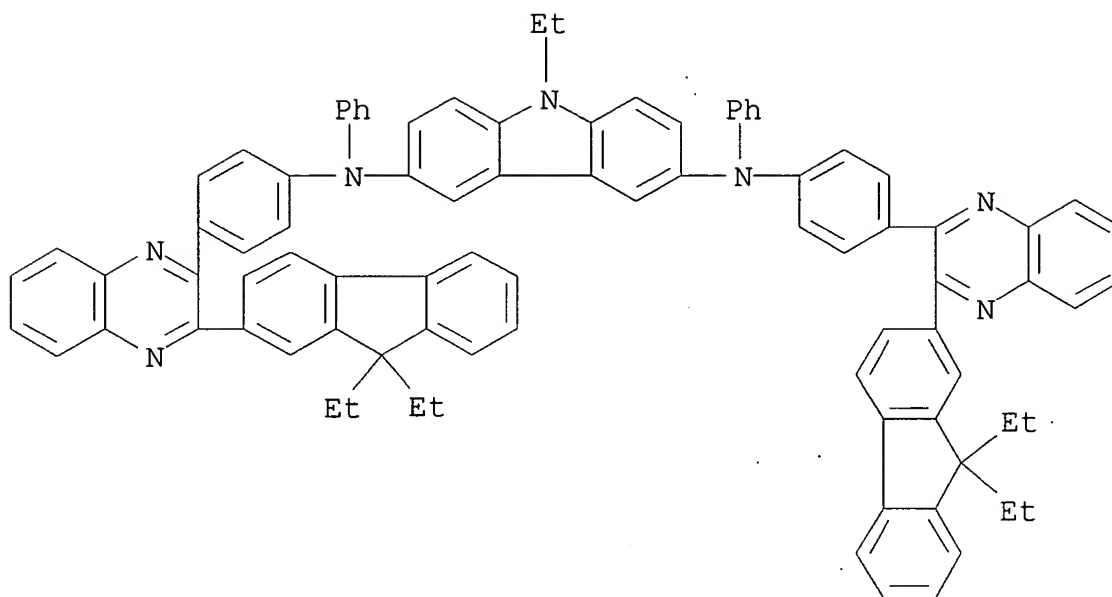
RN 468062-36-4 CAPLUS

CN 9H-Carbazole-3,6-diamine, N-[4-[3-(9,9-diethyl-9H-fluoren-2-yl)-2-quinoxaliny]phenyl]-9-ethyl-N,N'-diphenyl-N'-1-pyrenyl- (9CI)  
(CA INDEX NAME)



RN 468062-37-5 CAPLUS

CN 9H-Carbazole-3,6-diamine, N,N'-bis[4-[3-(9,9-diethyl-9H-fluoren-2-yl)-2-quinoxaliny]phenyl]-9-ethyl-N,N'-diphenyl- (9CI) (CA INDEX NAME)



- CC 73-11 (Optical, Electron, and Mass Spectroscopy and Other Related Properties)  
Section cross-reference(s): 22, 72, 76
- IT Band gap  
Cyclic voltammetry  
Electroluminescent devices  
HOMO (molecular orbital)  
LUMO (molecular orbital)  
**Luminescence**  
**Luminescence**, electroluminescence  
Solvent effect  
UV and visible spectra  
(green and yellow electroluminescent dipolar carbazole derivs. and their electrochem. and spectral and **luminescent** properties affected by electron-withdrawing segments)
- IT 2085-33-8, Aluminum tris(8-hydroxyquinolinato) 192198-85-9, TPBI  
(green and yellow electroluminescent dipolar carbazole derivs. and their electrochem. and spectral and **luminescent** properties affected by electron-withdrawing segments)
- IT 468062-26-2P 468062-27-3P 468062-28-4P  
468062-29-5P 468062-30-8P 468062-31-9P  
468062-32-0P  
(green and yellow electroluminescent dipolar carbazole derivs. and their electrochem. and spectral and **luminescent** properties affected by electron-withdrawing segments)
- IT 119546-71-3 436800-48-5 468062-24-0 468062-25-1  
468062-33-1 468062-34-2 468062-35-3

468062-36-4 468062-37-5

(green and yellow electroluminescent dipolar carbazole derivs.  
and their electrochem. and spectral and **luminescent**  
properties affected by electron-withdrawing segments)

REFERENCE COUNT: 45 THERE ARE 45 CITED REFERENCES AVAILABLE  
FOR THIS RECORD. ALL CITATIONS AVAILABLE  
IN THE RE FORMAT

L40 ANSWER 44 OF 65 CAPLUS COPYRIGHT 2005 ACS on STN

ACCESSION NUMBER: 2002:503505 CAPLUS

DOCUMENT NUMBER: 137:70359

TITLE: Organic **light-emitting**  
devices containing a region or a mixed  
**layer** provided for lowering energy  
barriers at interfaces between the organic  
**layers**, and electronic devices  
employing the **light-emitting**  
devices

INVENTOR(S): Seo, Satoshi; Yamazaki, Shunpei

PATENT ASSIGNEE(S): SEL Semiconductor Energy Laboratory Co., Ltd.,  
Japan

SOURCE: Eur. Pat. Appl., 78 pp.

CODEN: EPXXDW

DOCUMENT TYPE: Patent

LANGUAGE: English

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
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EP 1220339	A2	20020703	EP 2001-130487	2001 1220
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR				
TW 545080	B	20030801	TW 2001-90131393	2001 1218
SG 93298	A1	20021217	SG 2001-7839	2001 1219
US 2002121860	A1	20020905	US 2001-24699	2001 1221
JP 2002324680	A2	20021108	JP 2001-395213	2001 1226

CN 1362747

A

20020807

CN 2001-130274

2001

1228

PRIORITY APPLN. INFO.:

JP 2000-400730

A

2000

1228

JP 2001-45847

A

2001

0221

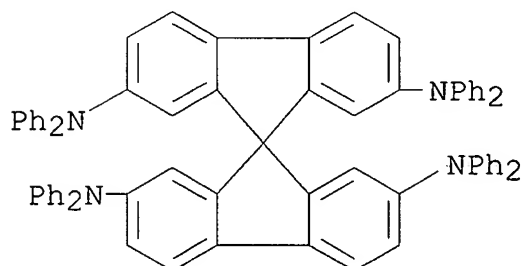
AB **Light emitting** devices are described which comprise at least a first **layer** comprising a first organic compound; and a second **layer** comprising a second organic compound which is different from the first organic compound, where a region or a mixed **layer** comprising the first organic compound and the second organic compound between the first **layer** and the second **layer** is provided for lowering energy barriers at interfaces between the organic **layers**. The devices may contain hole-injecting, hole-transporting, electron-transporting, electron-injecting and **light-emitting layers** as organic compound **layers**, and may have more than one regions or mixed **layers**. Electronic devices employing the **light-emitting** devices are also discussed.

IT 189363-47-1

(hole-transporting **layer**; fabrication of **light-emitting** devices containing mixed **layer** lowering energy barriers at interfaces between organic **layers** and containing spiro-TAD)

RN 189363-47-1 CAPLUS

CN 9,9'-Spirobi[9H-fluorene]-2,2',7,7'-tetramine,  
N,N,N',N',N'',N'',N''',N''''-octaphenyl- (9CI) (CA INDEX NAME)



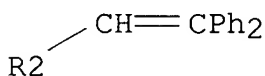
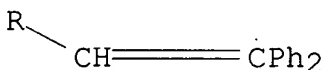
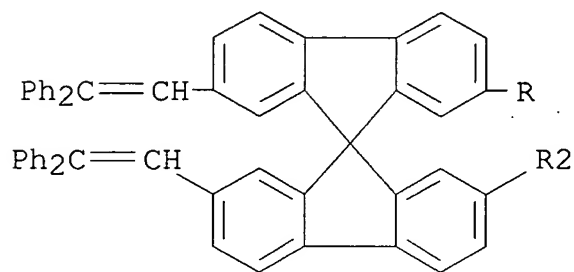
IT 296269-66-4

(**light-emitting layer**;  
fabrication of **light-emitting** devices

containing mixed **layer** lowering energy barriers at interfaces between organic **layers** and containing)

RN 296269-66-4 CAPLUS

CN 9,9'-Spirobi[9H-fluorene], 2,2',7,7'-tetrakis(2;2-diphenylethenyl)-(9CI) (CA INDEX NAME)



IC ICM H01L051-20

CC 73-11 (**Optical**, Electron, and Mass Spectroscopy and Other Related Properties)

Section cross-reference(s): 74, 76

ST org electroluminescent device mixed **layer** interface energy decrease; electronic device OLED mixed **layer** interface energy decrease

IT LUMO (molecular orbital)  
(HOMO gap; **light-emitting** devices containing a region or a mixed **layer** provided for lowering)

IT HOMO (molecular orbital)  
(LUMO gap; **light-emitting** devices containing a region or a mixed **layer** provided for lowering)

IT Chemical chains  
(conjugated, hole- or electron-injection regions; fabrication of **light-emitting** devices containing mixed **layer** lowering energy barriers at interfaces between organic **layers** and containing)

IT Polymers, uses  
(conjugates, hole-injecting region; fabrication of **light-emitting** devices containing mixed



- layer lowering energy barriers at interfaces between organic **layers** and containing)
- IT Alkali metal compounds  
Lewis bases  
(electron-injecting region containing; fabrication of **light-emitting** devices containing mixed **layer** lowering energy barriers at interfaces between organic **layers** and containing)
- IT Lewis acids  
(hole-injecting region containing; fabrication of **light-emitting** devices containing mixed **layer** lowering energy barriers at interfaces between organic **layers** and containing)
- IT Halogen compounds  
(hole-injecting region of conjugated system doped with; fabrication of **light-emitting** devices containing mixed **layer** lowering energy barriers at interfaces between organic **layers** and containing)
- IT Excited triplet state  
(light emission from; **light-emitting** devices containing a region or a mixed **layer** provided for lowering energy barriers at interfaces between organic **layers** and involving)
- IT Electric apparatus  
Electroluminescent devices  
Electronic device fabrication  
Interfacial energy  
Optical imaging devices  
(**light-emitting** devices containing a region or a mixed **layer** provided for lowering energy barriers at interfaces between organic **layers**, and electronic devices employing **light-emitting** devices)
- IT 7439-93-2, Lithium, uses  
(-doped bathophenanthroline electron-injection region; fabrication of **light-emitting** devices containing mixed **layer** lowering energy barriers at interfaces between organic **layers** and containing)
- IT 50926-11-9, ITO  
(anode; fabrication of **light-emitting** devices containing mixed **layer** lowering energy barriers at interfaces between organic **layers** and containing)
- IT 7429-90-5, Aluminum, uses 11099-20-0 12798-95-7  
(cathode; fabrication of **light-emitting** devices containing mixed **layer** lowering energy barriers at interfaces between organic **layers** and containing)
- IT 18115-70-3, Lithium acetyl acetate, uses  
(electron-injection **layer**; fabrication of **light-emitting** devices containing mixed

- layer lowering energy barriers at interfaces between organic **layers** and containing)
- IT 1662-01-7, Bathophenanthroline 2085-33-8, Alq3 150405-69-9, TAZ (triazole derivative)  
(electron-transporting **layer**; fabrication of **light-emitting** devices containing mixed **layer** lowering energy barriers at interfaces between organic **layers** and containing)
- IT 4733-39-5, Bathocuproine  
(hole-blocking **layer**; fabrication of **light-emitting** devices containing mixed **layer** lowering energy barriers at interfaces between organic **layers** and containing)
- IT 147-14-8, Copper phthalocyanine  
(hole-injection material; fabrication of **light-emitting** devices containing mixed **layer** lowering energy barriers at interfaces between organic **layers** and containing)
- IT 123847-85-8, 4,4'-Bis[N-(1-naphthyl)-N-phenylamino]biphenyl  
124729-98-2, 4,4',4''-Tris [N-(3-methylphenyl)-N-phenylamino]triphenylamine  
(hole-transporting **layer**; fabrication of **light-emitting** devices containing mixed **layer** lowering energy barriers at interfaces between organic **layers** and containing)
- IT 189363-47-1  
(hole-transporting **layer**; fabrication of **light-emitting** devices containing mixed **layer** lowering energy barriers at interfaces between organic **layers** and containing spiro-TAD)
- IT 104934-50-1, Poly(3-hexyl)thiophene  
(iodine-doped hole-injecting region; fabrication of **light-emitting** devices containing mixed **layer** lowering energy barriers at interfaces between organic **layers** and containing)
- IT 58328-31-7, 4,4'-N,N'-Dicarbazolylbiphenyl  
(**light-emitting layer** dopant; fabrication of **light-emitting** devices containing mixed **layer** lowering energy barriers at interfaces between organic **layers** and containing)
- IT 296269-66-4  
(**light-emitting layer**; fabrication of **light-emitting** devices containing mixed **layer** lowering energy barriers at interfaces between organic **layers** and containing)
- IT 146162-54-1  
(**light-emitting** material host; fabrication of **light-emitting** devices containing mixed

layer lowering energy barriers at interfaces between organic layers and containing)

IT 51325-91-8, 4-(Dicyanomethylene)-2-methyl-6-(p-dimethylaminostyryl)-4H-pyran 94928-86-6, Tris (2-phenylpyridine) iridium (light-emitting material; fabrication of light-emitting devices containing mixed layer lowering energy barriers at interfaces between organic layers and containing)

IT 14362-44-8, Iodine, atomic, uses (polymer hole-injecting region doped with; fabrication of light-emitting devices containing mixed layer lowering energy barriers at interfaces between organic layers and containing)

L40 ANSWER 45 OF 65 CAPLUS COPYRIGHT 2005 ACS on STN

ACCESSION NUMBER: 2002:368916 CAPLUS

DOCUMENT NUMBER: 136:393041

TITLE: Organic electroluminescent devices

INVENTOR(S): Toguchi, Satoru; Ishikawa, Hitoshi; Tada, Hiroshi; Oda, Atsushi

PATENT ASSIGNEE(S): Samsung Electronics Co., Ltd., Japan

SOURCE: U.S. Pat. Appl. Publ., 87 pp.  
CODEN: USXXCO

DOCUMENT TYPE: Patent

LANGUAGE: English

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO. -----	KIND ----	DATE -----	APPLICATION NO. -----	DATE
US 2002058156	A1	20020516	US 2001-985657	2001 1105
US 6746784	B2	20040608		
JP 2002151263	A2	20020524	JP 2000-339603	2000 1107
JP 3548841	B2	20040728		
JP 2002151264	A2	20020524	JP 2000-339604	2000 1107
JP 3548842	B2	20040728		
JP 2002151265	A2	20020524	JP 2000-339605	2000 1107
JP 3548843	B2	20040728		

PRIORITY APPLN. INFO.: JP 2000-339603 A  
2000  
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JP 2000-339605 A  
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1107

OTHER SOURCE(S): MARPAT 136:393041

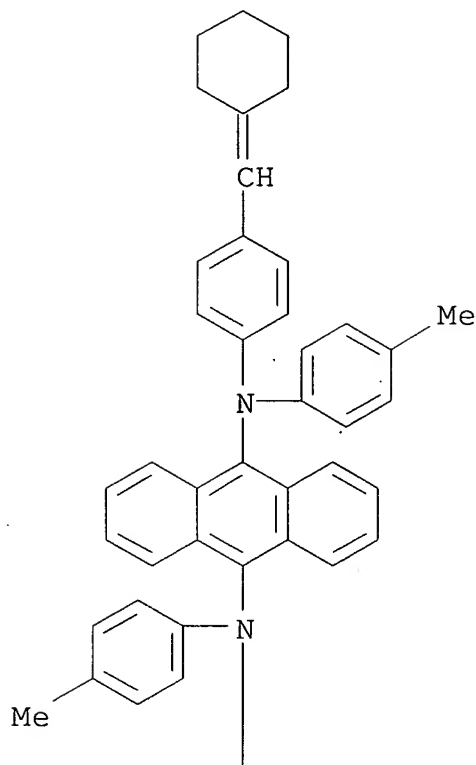
AB Organic electroluminescent devices comprising an anode; a cathode; and  $\geq 1$  organic thin film **layers** including a **light-emitting layer** sandwiched between said anode and said cathode ADIW  $\geq 1$  organic thin film **layer** contains a compound including an (un)substituted cyclohexylidenemethine group.

IT 426218-20-4P 426218-21-5P 426218-22-6P  
426218-36-2P 426218-37-3P 426218-38-4P  
426218-40-8P 426218-41-9P 426218-42-0P  
426218-47-5P 426218-56-6P 426218-59-9P  
(organic electroluminescent devices employing cyclohexylidenemethine derivs.)

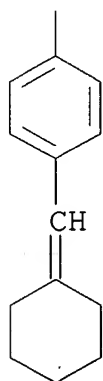
RN 426218-20-4 CAPLUS

CN 9,10-Anthracenediamine, N,N'-bis[4-(cyclohexylidenemethyl)phenyl]-  
N,N'-bis(4-methylphenyl)- (9CI) (CA INDEX NAME)

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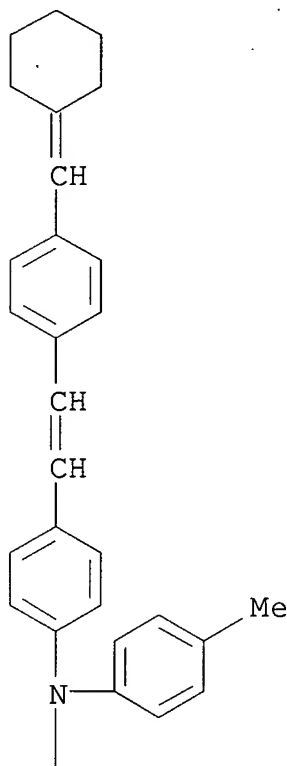
PAGE 2-A



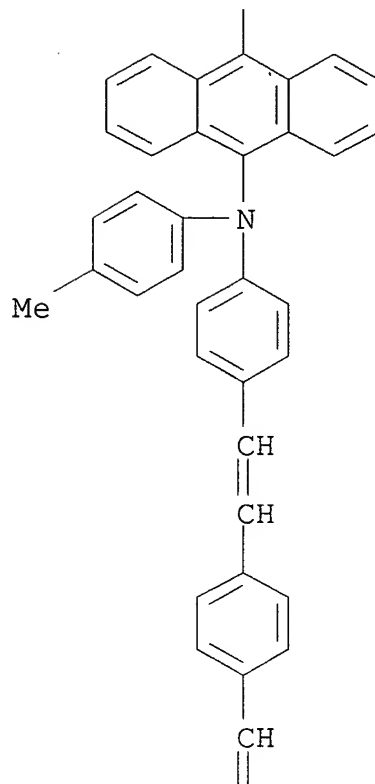
RN 426218-21-5 CAPLUS  
CN 9,10-Anthracenediamine, N,N'-bis[4-[2-[4-

(cyclohexylidenemethyl)phenyl]ethenyl]phenyl]-N,N'-bis(4-methylphenyl)- (9CI) (CA INDEX NAME)

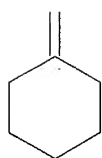
PAGE 1-A



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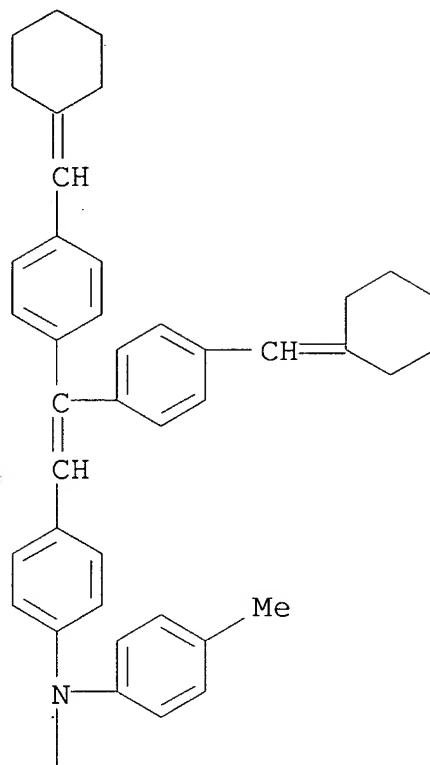
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RN 426218-22-6 CAPLUS

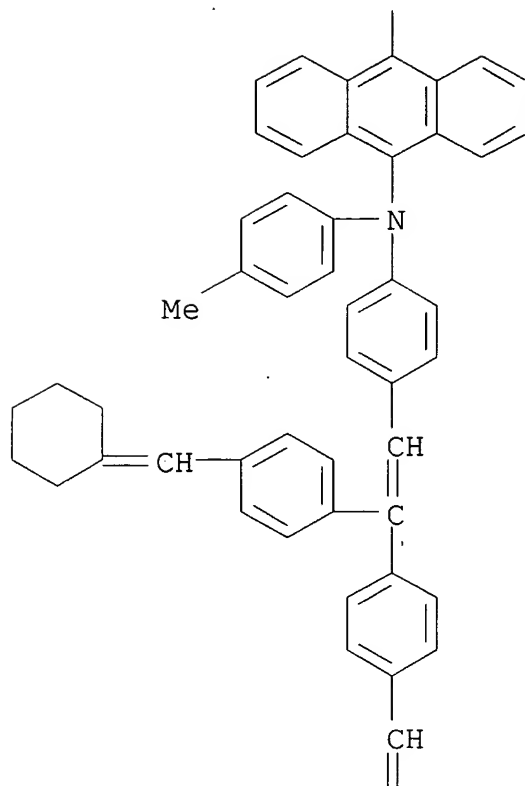
CN 9,10-Anthracenediamine, N,N'-bis[4-[2,2-bis[4-(cyclohexylidenemethyl)phenyl]ethenyl]phenyl]-N,N'-bis(4-methylphenyl)- (9CI) (CA INDEX NAME)

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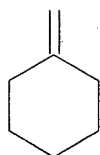




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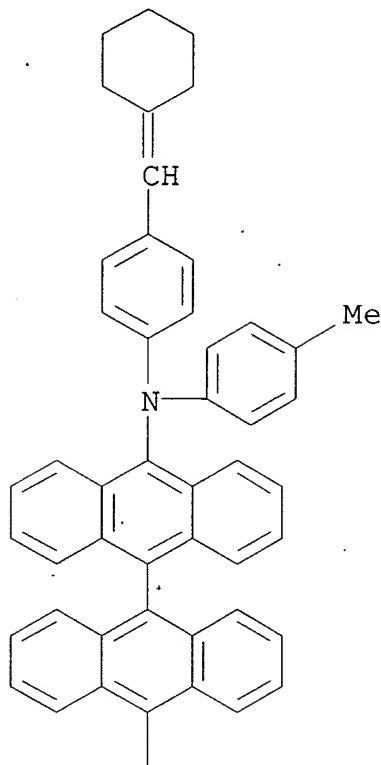


PAGE 3-A

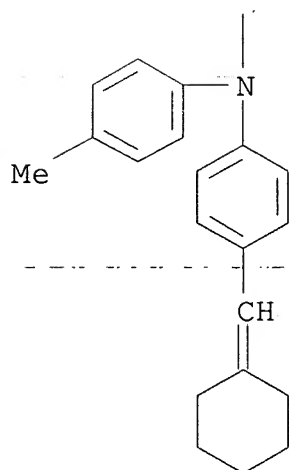


RN 426218-36-2 CAPLUS  
CN [9,9'-Bianthracene]-10,10'-diamine, N,N'-bis[4-(cyclohexylidenemethyl)phenyl]-N,N'-bis(4-methylphenyl)- (9CI)  
(CA INDEX NAME)

PAGE 1-A

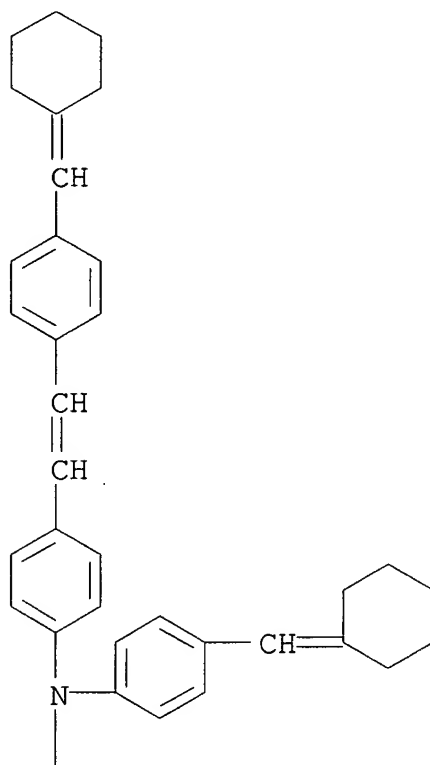


PAGE 2-A

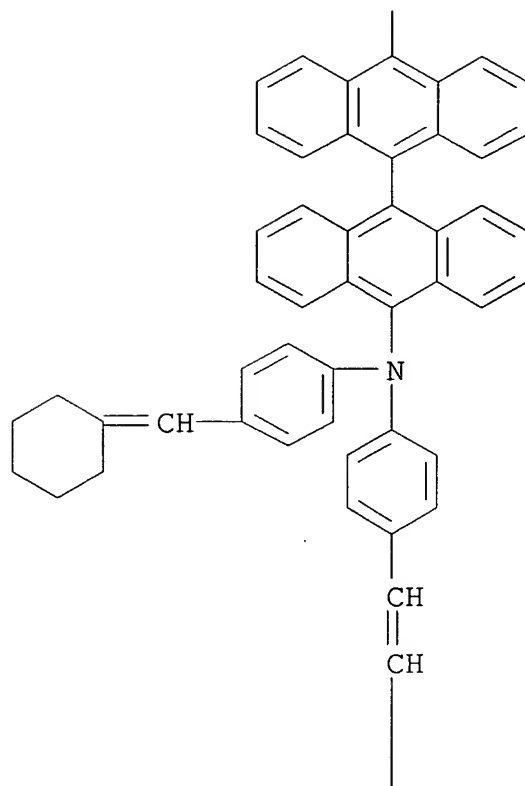


RN 426218-37-3 CAPLUS  
CN [9,9'-Bianthracene]-10,10'-diamine, N,N'-bis[4-(cyclohexylidenemethyl)phenyl]-N,N'-bis[4-[2-[4-(cyclohexylidenemethyl)phenyl]ethenyl]phenyl]- (9CI) (CA INDEX NAME)

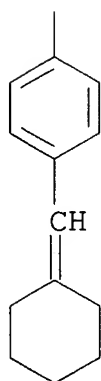
PAGE 1-A



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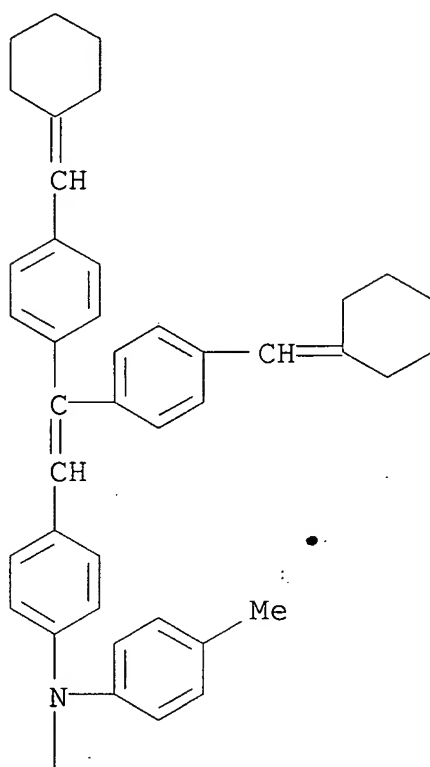
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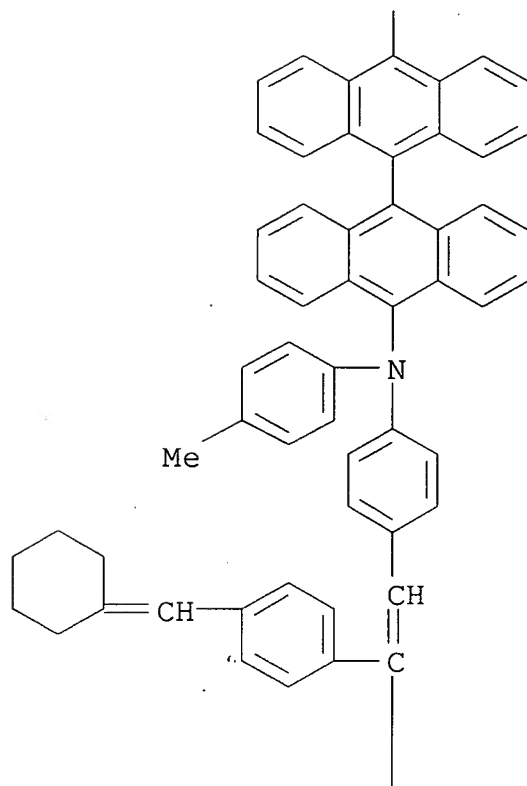
RN 426218-38-4 CAPLUS  
 CN [9,9'-Bianthracene]-10,10'-diamine, N,N'-bis[4-[2,2-bis[4-

(cyclohexylidenemethyl)phenyl]ethenyl]phenyl]-N,N'-bis(4-methylphenyl)- (9CI) (CA INDEX NAME)

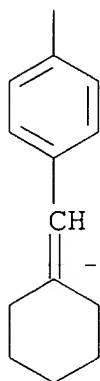
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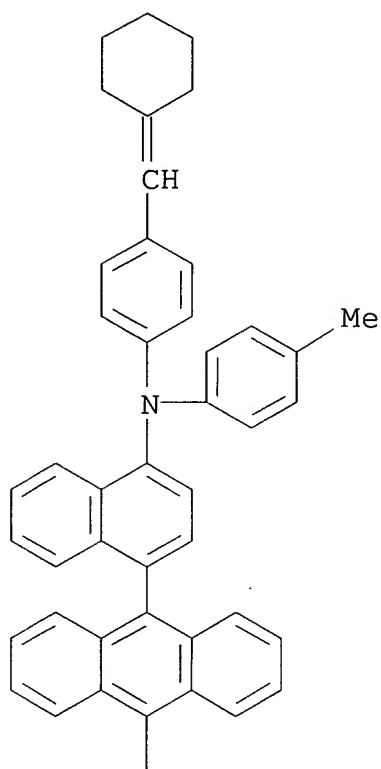
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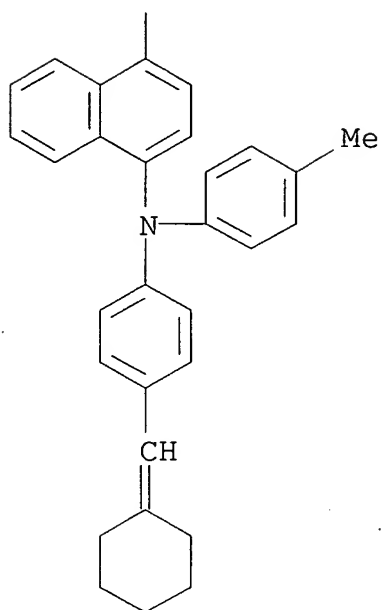
RN 426218-40-8 CAPLUS  
 CN 1-Naphthalenamine, 4,4'-(9,10-anthracenediyl)bis[N-[4-

(cyclohexylidenemethyl)phenyl]-N-(4-methylphenyl)- (9CI) (CA  
INDEX NAME)

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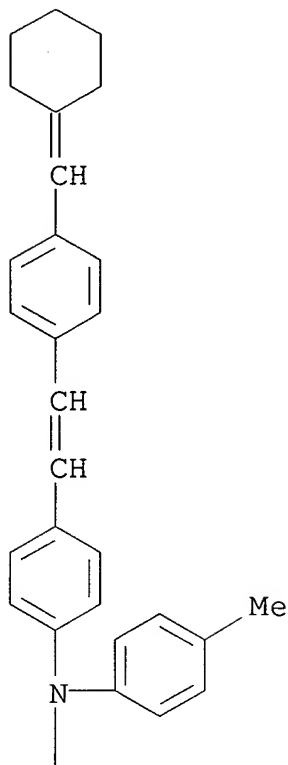


RN 426218-41-9 CAPLUS

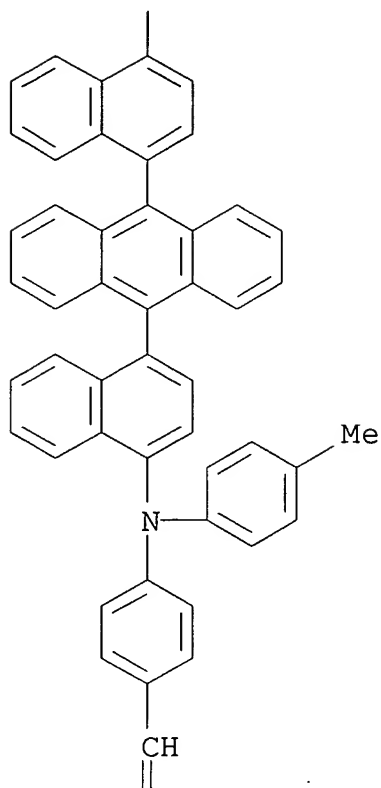
CN 1-Naphthalenamine, 4,4'-(9,10-anthracenediyl)bis[N-[4-[2-[4-(cyclohexylidenemethyl)phenyl]ethenyl]phenyl]-N-(4-methylphenyl)-  
(9CI) (CA INDEX NAME)



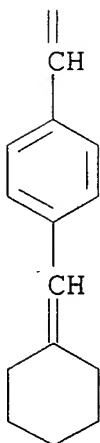
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PAGE 2-A

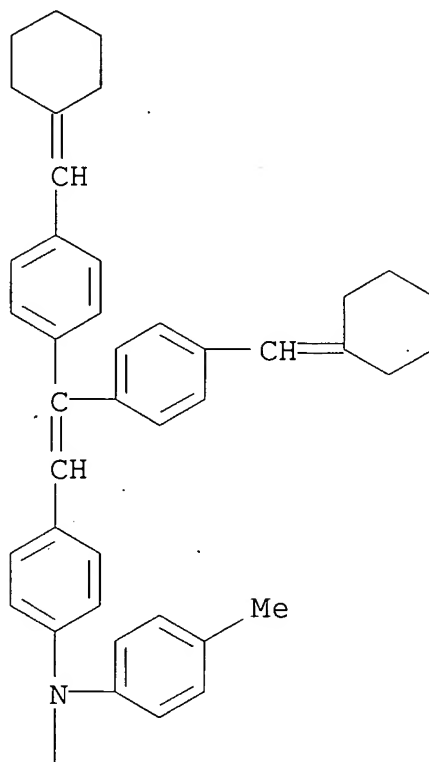


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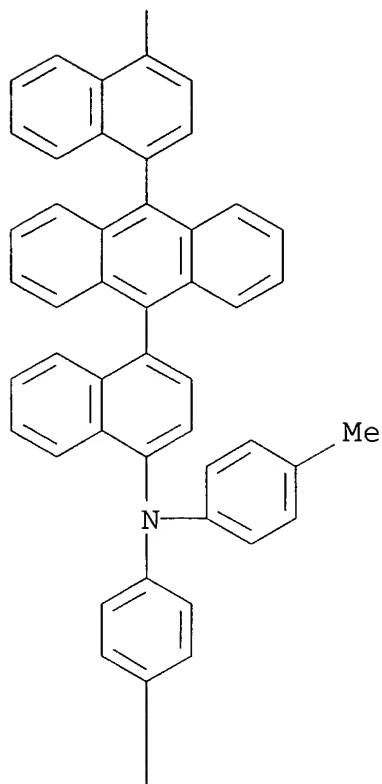


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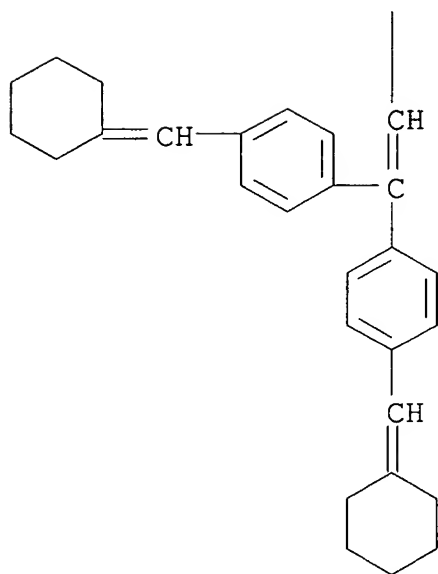
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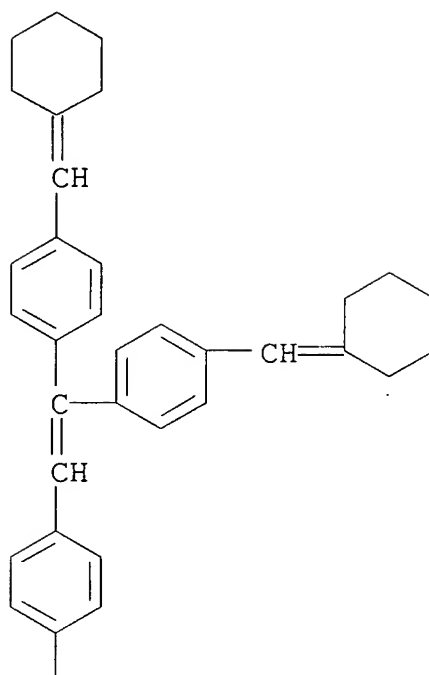


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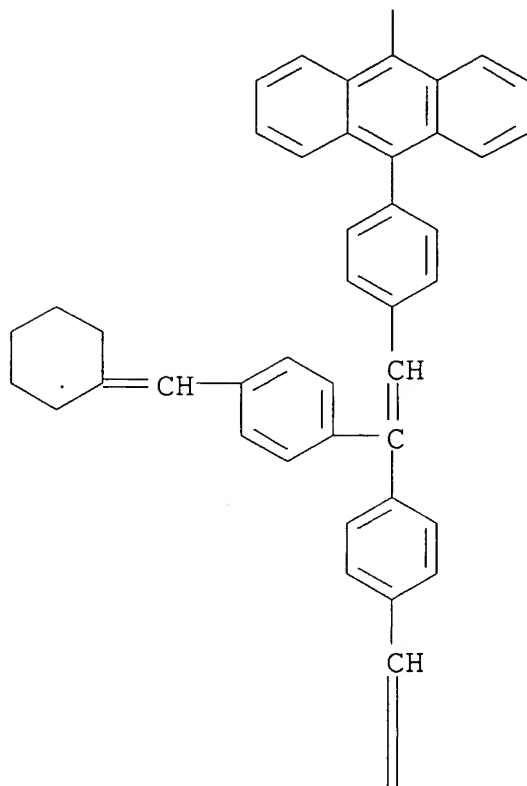


RN ` 426218-47-5 CAPLUS  
CN Anthracene, 9,10-bis[4-[2,2-bis[4-(cyclohexylidenemethyl)phenyl]et  
henyl]phenyl]- (9CI) (CA INDEX NAME)

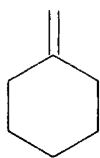
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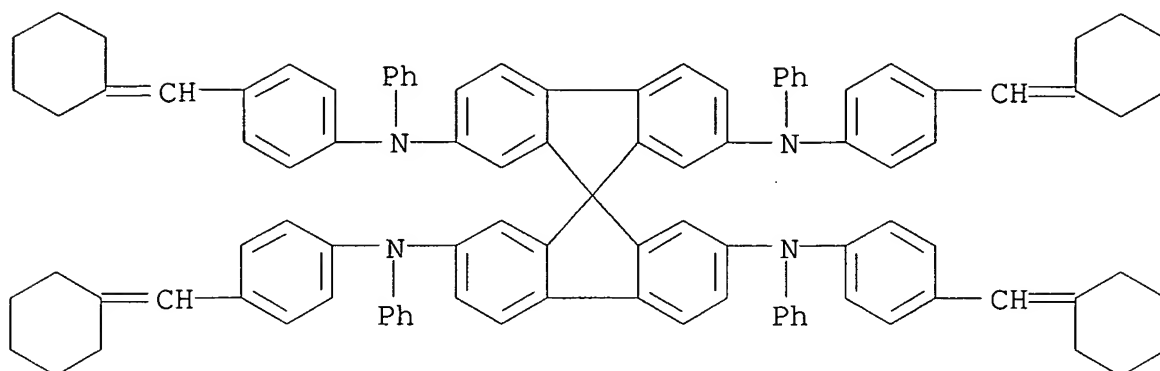
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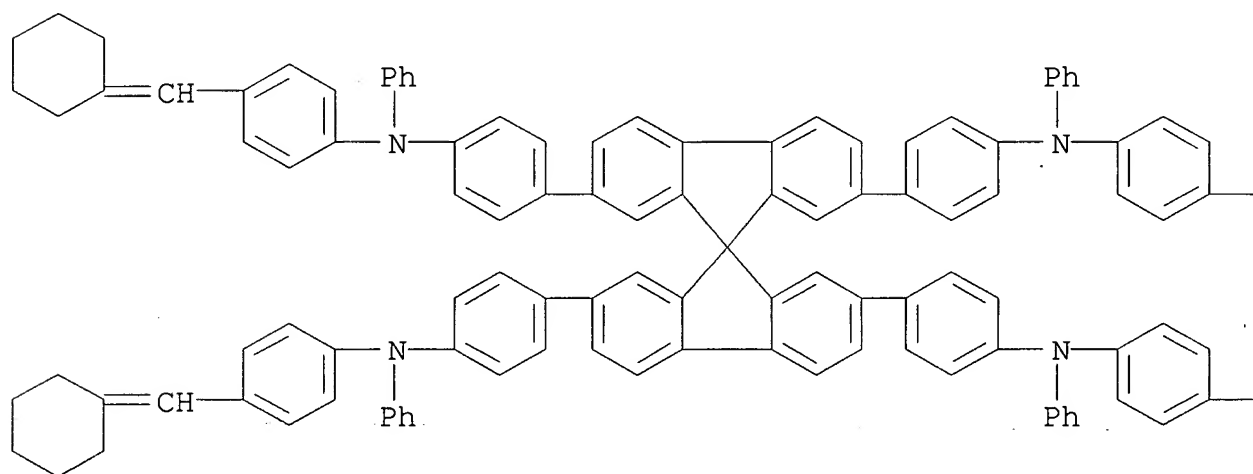
RN 426218-56-6 CAPLUS  
CN 9,9'-Spirobi[9H-fluorene]-2,2',7,7'-tetramine,  
N,N',N'',N'''-tetrakis[4-(cyclohexylidenemethyl)phenyl]-  
N,N',N'',N'''-tetraphenyl- (9CI) (CA INDEX NAME)



RN 426218-59-9 CAPLUS

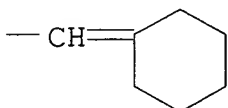
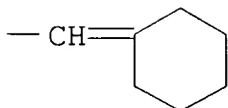
CN Benzenamine, 4,4',4'',4'''-(9,9'-spirobi[9H-fluorene]-2,2',7,7'-  
tetrayl)tetrakis[N-[4-(cyclohexylidenemethyl)phenyl]-N-phenyl-  
(9CI) (CA INDEX NAME)

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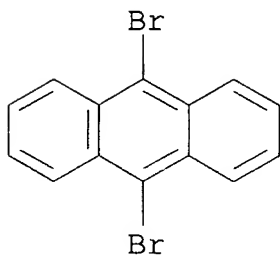




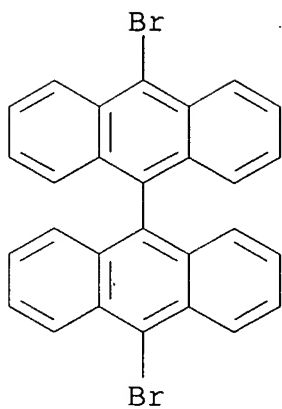
PAGE 1-B



IT 523-27-3, 9,10-Dibromoanthracene 121848-75-7,  
10,10'-Dibromo-9,9'-bianthryl 128055-74-3,  
2,2',7,7'-Tetrabromo-9,9'-spirobifluorene 426218-39-5  
426218-58-8  
(organic electroluminescent devices employing  
cyclohexylidenemethine derivs.)  
RN 523-27-3 CAPLUS  
CN Anthracene, 9,10-dibromo- (6CI, 8CI, 9CI) (CA INDEX NAME)

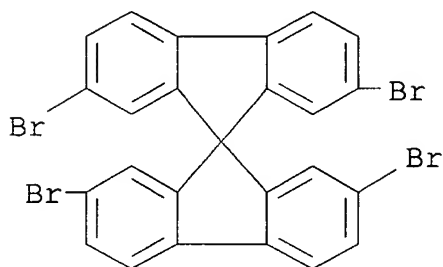


RN 121848-75-7 CAPLUS  
CN 9,9'-Bianthracene, 10,10'-dibromo- (9CI) (CA INDEX NAME)



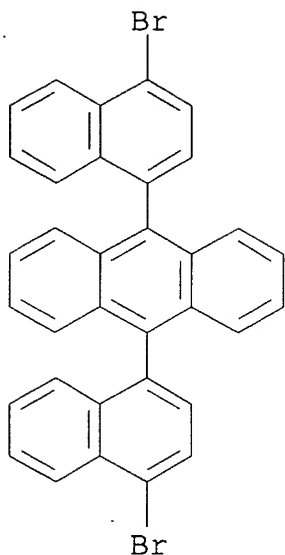
RN 128055-74-3 CAPLUS

CN 9,9'-Spirobi[9H-fluorene], 2,2',7,7'-tetrabromo- (9CI) (CA INDEX NAME)



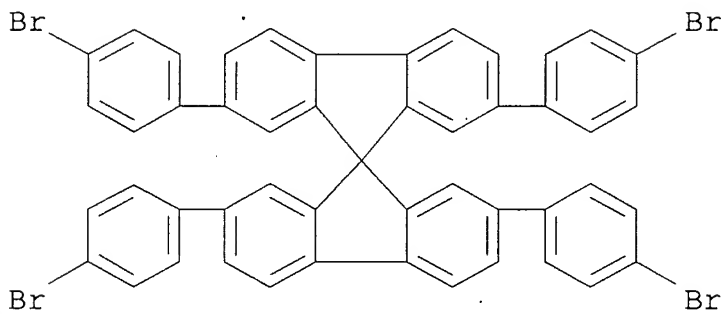
RN 426218-39-5 CAPLUS

CN Anthracene, 9,10-bis(4-bromo-1-naphthalenyl)- (9CI) (CA INDEX NAME)



RN 426218-58-8 CAPLUS

CN 9,9'-Spirobi[9H-fluorene], 2,2',7,7'-tetrakis(4-bromophenyl)-  
(9CI) (CA INDEX NAME)



IC H05B033-12

NCL 428690000

CC 73-11 (Optical, Electron, and Mass Spectroscopy and  
Other Related Properties)

Section cross-reference(s): 25, 76

IT	426218-12-4P	426218-13-5P	426218-14-6P	426218-15-7P
	426218-16-8P	426218-17-9P	426218-18-0P	426218-19-1P
	<b>426218-20-4P</b>	<b>426218-21-5P</b>	<b>426218-22-6P</b>	
	426218-23-7P	426218-24-8P	426218-25-9P	426218-26-0P
	426218-27-1P	426218-28-2P	426218-30-6P	426218-31-7P
	426218-32-8P	426218-33-9P	426218-34-0P	426218-35-1P
	<b>426218-36-2P</b>	<b>426218-37-3P</b>	<b>426218-38-4P</b>	

426218-40-8P 426218-41-9P 426218-42-0P  
426218-44-2P 426218-46-4P 426218-47-5P 426218-49-7P  
426218-50-0P 426218-52-2P 426218-53-3P 426218-54-4P  
426218-55-5P 426218-56-6P 426218-59-9P  
426218-60-2P 426218-61-3P 426252-99-5P 426253-00-1P  
426253-01-2P

(organic electroluminescent devices employing  
cyclohexylidenemethine derivs.)

IT 62-53-3, Aniline, reactions 83-53-4, 1,4-Dibromonaphthalene  
106-49-0, p-Toluidine, reactions 108-94-1, Cyclohexanone,  
reactions 122-52-1, Triethyl phosphite 128-08-5,  
N-Bromosuccinimide 523-27-3, 9,10-Dibromoanthracene  
589-15-1, 4-Bromobenzyl bromide 589-17-3,  $\alpha$ -Chloro-4-  
bromotoluene 626-39-1, 1,3,5-Tribromobenzene 4316-58-9,  
Tris(4-bromophenyl)amine 19930-62-2 33861-11-9 56752-35-3,  
3,9-Dibromoperylene 72393-15-8 97136-66-8 98327-87-8,  
2,2'-Bis(diphenylphosphino)-1,1'-binaphthyl 121848-75-7,  
10,10'-Dibromo-9,9'-bianthryl 128055-74-3,  
2,2',7,7'-Tetrabromo-9,9'-spirobifluorene 227010-27-7  
252646-79-0 426218-07-7 426218-09-9 426218-29-3  
426218-39-5 426218-57-7 426218-58-8  
426252-98-4

(organic electroluminescent devices employing  
cyclohexylidenemethine derivs.)

REFERENCE COUNT: 10 THERE ARE 10 CITED REFERENCES AVAILABLE  
FOR THIS RECORD. ALL CITATIONS AVAILABLE  
IN THE RE FORMAT

L40 ANSWER 46 OF 65 CAPLUS COPYRIGHT 2005 ACS on STN

ACCESSION NUMBER: 2002:367194 CAPLUS

DOCUMENT NUMBER: 136:377205

TITLE: OLEDs containing thermally stable glassy  
organic hole transporting materials

INVENTOR(S): Thompson, Mark E.; Douglas, Loy; Forrest,  
Stephen R.; Koene, Bryan E.; O'Brien, Diarmuid  
PATENT ASSIGNEE(S): The Trustees of Princeton University, USA; The  
University of Southern California

SOURCE: U.S., 22 pp., Cont.-in-part of U.S. 6,150,093.  
CODEN: USXXAM

DOCUMENT TYPE: Patent

LANGUAGE: English

FAMILY ACC. NUM. COUNT: 4

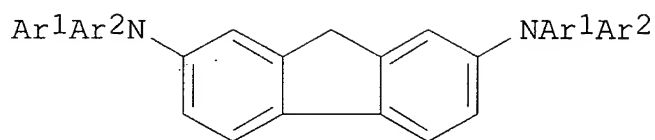
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
US 6387544	B1	20020514	US 1998-204386	

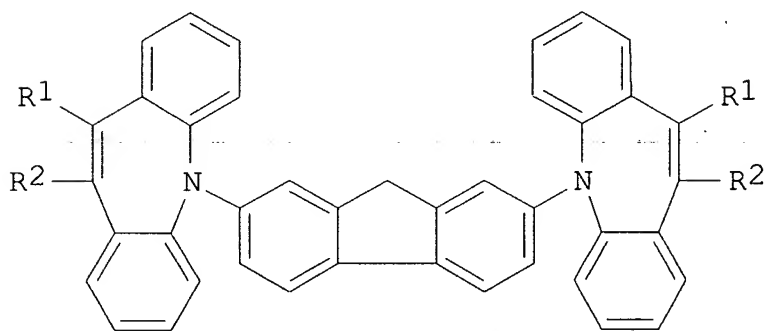
1998  
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US 6150043 A 20001121 US 1998-58305  
1998  
0410  
EP 1394870 A2 20040303 EP 2003-25325  
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1008  
EP 1394870 A3 20040310  
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE,  
MC, PT, IE, LT, LV, FI, MK, CY, AL  
WO 2000033617 A1 20000608 WO 1999-US28500  
1999  
1202  
W: AE, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN,  
CR, CU, CZ, DE, DK, DM, EE, ES, FI, GB, GD, GE, GH, GM,  
HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK,  
LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, NO, NZ,  
PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT,  
TZ, UA, UG, UZ, VN, YU, ZA, ZW, AM, AZ, BY, KG, KZ, MD,  
RU, TJ, TM  
RW: GH, GM, KE, LS, MW, SD, SL, SZ, TZ, UG, ZW, AT, BE, CH,  
CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT,  
SE, BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN,  
TD, TG  
US 6333521 B1 20011225 US 2000-610454  
2000  
0705  
PRIORITY APPLN. INFO.: US 1998-58305 A2  
1998  
0410  
US 1997-948130 A  
1997  
1009  
US 1997-64005P P  
1997  
1103  
US 1997-964863 A  
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US 1997-980986 A  
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US 1998-53030	A	1998 0401
US 1998-53707	A	1998 0403
US 1998-152960	A	1998 0914
EP 1998-953300	A3	1998 1008
US 1998-204386	A	1998 1202

OTHER SOURCE(S):            MARPAT 136:377205  
GI



I



II

AB Organic **light-emitting** devices comprising a heterostructure for producing electroluminescence are described in which the heterostructure includes a hole-transporting **layer** having a glass structure which comprises compds. which are described by the general formulas I or II (Ar1 and Ar2 =

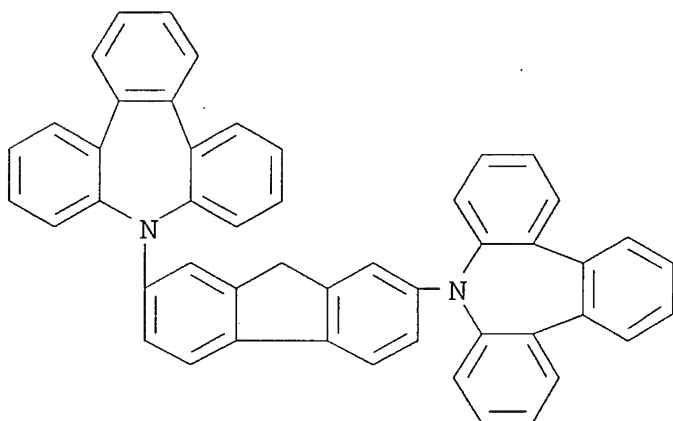
(un)substituted arene moieties. with the proviso that Ar1 and Ar2 are different; R1 and R2 = independently selected hydrogen, (un)substituted alkyl, or (un)substituted Ph groups; and R1 and R2 may be bridged). A variety of types of displays employing the devices are also described. The compds. are also claimed.

IT 273381-60-5 273381-62-7 273381-63-8

(thermally stable glassy hole transporting materials based on fluorene derivs. and electroluminescent devices using them)

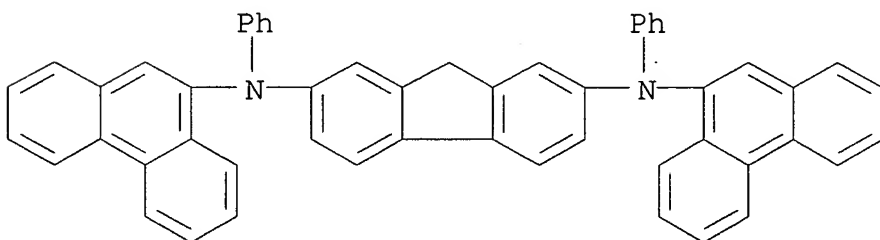
RN 273381-60-5 CAPLUS

CN 9H-Tribenz[b,d,f]azepine, 9,9'-(9H-fluorene-2,7-diyl)bis- (9CI)  
(CA INDEX NAME)



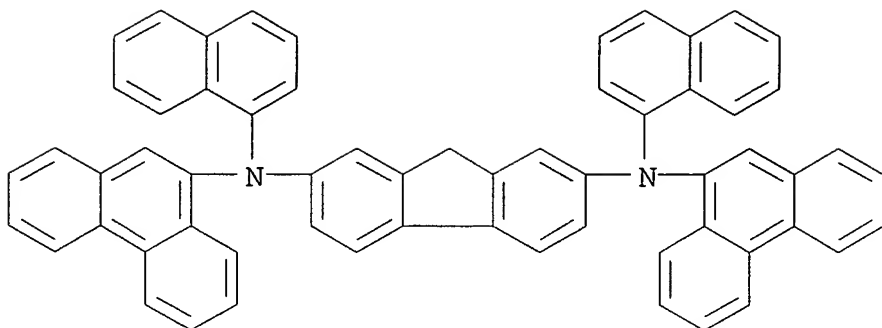
RN 273381-62-7 CAPLUS

CN 9H-Fluorene-2,7-diamine, N,N'-di-9-phenanthrenyl-N,N'-diphenyl- (9CI) (CA INDEX NAME)



RN 273381-63-8 CAPLUS

CN 9H-Fluorene-2,7-diamine, N,N'-di-1-naphthalenyl-N,N'-di-9-phenanthrenyl- (9CI) (CA INDEX NAME)

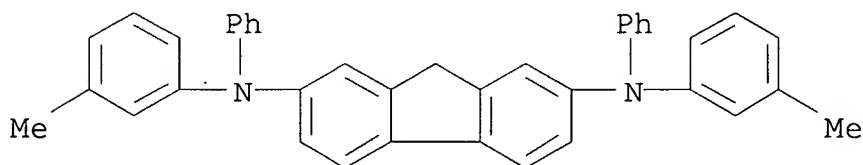


IT 142517-32-6P 273381-59-2P 273381-61-6P

(thermally stable glassy hole transporting materials based on fluorene derivs. and electroluminescent devices using them)

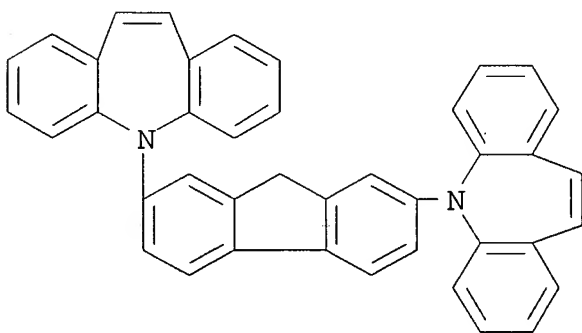
RN 142517-32-6 CAPLUS

CN 9H-Fluorene-2,7-diamine, N,N'-bis(3-methylphenyl)-N,N'-diphenyl- (9CI) (CA INDEX NAME)



RN 273381-59-2 CAPLUS

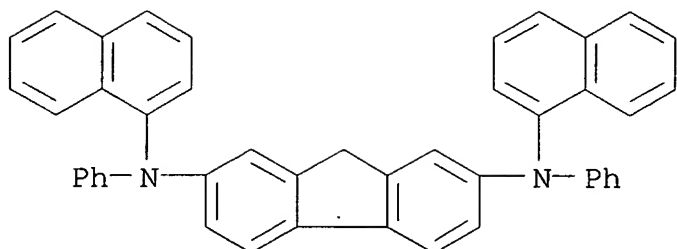
CN 5H-Dibenz[b,f]azepine, 5,5'-(9H-fluorene-2,7-diyl)bis- (9CI) (CA INDEX NAME)



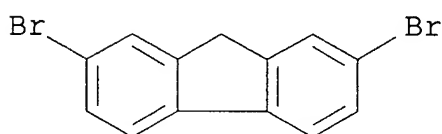
RN 273381-61-6 CAPLUS

CN 9H-Fluorene-2,7-diamine, N,N'-di-1-naphthalenyl-N,N'-diphenyl- (9CI) (CA INDEX NAME)





IT 16433-88-8, 2,7-Dibromofluorene  
 (thermally stable glassy hole transporting materials based on  
 fluorene derivs. and electroluminescent devices using them)  
 RN 16433-88-8 CAPLUS  
 CN 9H-Fluorene, 2,7-dibromo- (9CI) (CA INDEX NAME)



IC ICM H05B033-12  
 ICS C07D223-14; C07D211-42  
 NCL 428690000  
 CC 73-11 (Optical, Electron, and Mass Spectroscopy and  
 Other Related Properties)  
 Section cross-reference(s): 25, 74, 76  
 IT 147-14-8, Copper phthalocyanine 2085-33-8, Tris(8-  
 hydroxyquinolinato)aluminum 273381-60-5  
 273381-62-7 273381-63-8  
 (thermally stable glassy hole transporting materials based on  
 fluorene derivs. and electroluminescent devices using them)  
 IT 142517-32-6P 273381-59-2P 273381-61-6P  
 (thermally stable glassy hole transporting materials based on  
 fluorene derivs. and electroluminescent devices using them)  
 IT 90-30-2, Phenyl-1-naphthyl amine 256-96-2, Iminostilbene  
 1205-64-7 16433-88-8, 2,7-Dibromofluorene  
 (thermally stable glassy hole transporting materials based on  
 fluorene derivs. and electroluminescent devices using them)

L40 ANSWER 47 OF 65 CAPLUS COPYRIGHT 2005 ACS on STN  
 ACCESSION NUMBER: 2002:329583 CAPLUS  
 DOCUMENT NUMBER: 137:39058  
 TITLE: Quinoxalines Incorporating Triarylamine:

## Potential Electroluminescent Materials with Tunable Emission Characteristics

AUTHOR(S): Thomas, K. R. Justin; Lin, Jiann T.; Tao, Yu-Tai; Chuen, Chang-Hao

CORPORATE SOURCE: Institute of Chemistry, Academia Sinica, Taipei, Taiwan

SOURCE: Chemistry of Materials (2002), 14(6), 2796-2802

CODEN: CMATEX; ISSN: 0897-4756

PUBLISHER: American Chemical Society

DOCUMENT TYPE: Journal

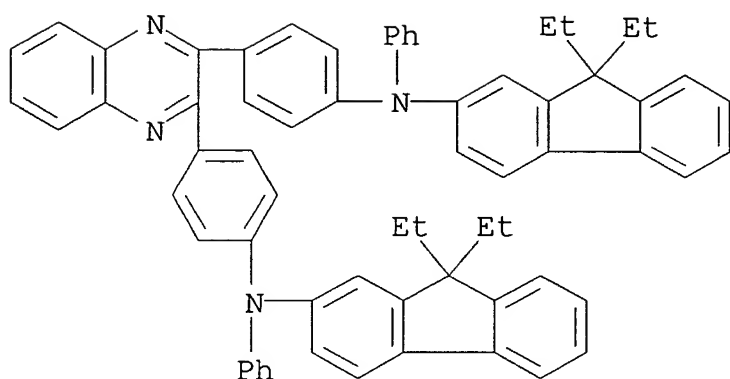
LANGUAGE: English

AB Dipolar compds. featuring quinoxaline acceptors and various triarylamine donors were prepared in good yields and successfully employed in the fabrication of organic **light-emitting** diodes (OLEDs). Also the emission color of these compds. can be easily tuned from bluish green to orange by suitably modifying the diarylamine and quinoxaline units independently. Increasing the donor and acceptor strengths bathochromically shifts the absorption and emission bands. These mols. possess moderate glass transition temps. (114-152°) and exhibit high decomposition temps. (441-554°). The two-**layer** OLEDs fabricated using these materials as hole-transporting and emitting **layers** and 1,3,5-tris(N-phenylbenzimidazol-2-yl)benzene or tris(8-hydroxyquinolinato)aluminum as the electron-transport **layer** display promising characteristics, i.e., emission color, luminance, and efficiency. Incorporation of the hole-blocking quinoxaline segments in the hole-transporting triarylamine mols. leads to the confinement of the recombination zone in it, and thus emission is realized mainly from these materials for both types of devices. The factors leading to the funneling of light through the hole-transporting **layer** in these **layers** are critically analyzed.

IT 436800-51-0 436800-52-1  
(quinoxalines incorporating triarylamines as potential electroluminescent materials with tunable emission characteristics)

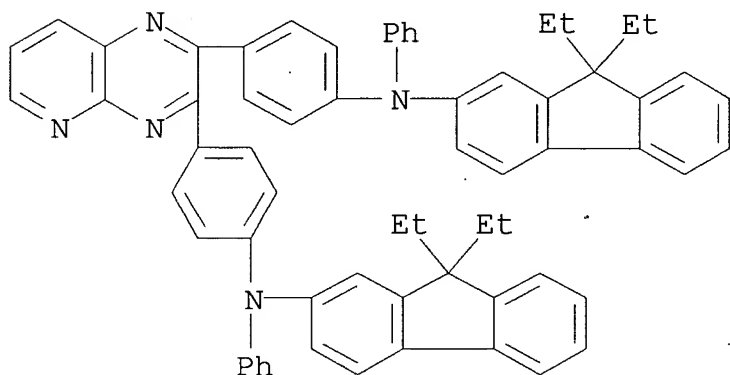
RN 436800-51-0 CAPLUS

CN 9H-Fluoren-2-amine, N,N'-(2,3-quinoxalinediyl)di-4,1-phenylene)bis[9,9-diethyl-N-phenyl- (9CI) (CA INDEX NAME)



RN 436800-52-1 CAPLUS

CN 9H-Fluoren-2-amine, N,N'-(pyrido[2,3-b]pyrazine-2,3-diyl-di-4,1-phenylene)bis[9,9-diethyl-N-phenyl- (9CI) (CA INDEX NAME)

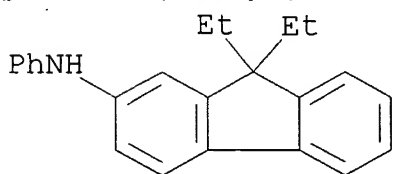


IT 373390-07-9

(quinoxalines incorporating triaryl amines as potential electroluminescent materials with tunable emission characteristics)

RN 373390-07-9 CAPLUS

CN 9H-Fluoren-2-amine, 9,9-diethyl-N-phenyl- (9CI) (CA INDEX NAME)



CC 73-11 (Optical, Electron, and Mass Spectroscopy and

Other Related Properties)  
IT **Luminescent** substances  
(electroluminescent; quinoxalines incorporating triarylamine  
as potential electroluminescent materials with tunable emission  
characteristics)  
IT 436800-49-6 436800-50-9 **436800-51-0**  
**436800-52-1** 436800-53-2 436800-54-3  
(quinoxalines incorporating triarylamine as potential  
electroluminescent materials with tunable emission  
characteristics)  
IT 90-30-2, 1-Naphthyl phenylamine 19802-70-1 **373390-07-9**  
436800-47-4 436800-48-5  
(quinoxalines incorporating triarylamine as potential  
electroluminescent materials with tunable emission  
characteristics)

REFERENCE COUNT: 51 THERE ARE 51 CITED REFERENCES AVAILABLE  
FOR THIS RECORD. ALL CITATIONS AVAILABLE  
IN THE RE FORMAT

L40 ANSWER 48 OF 65 CAPLUS COPYRIGHT 2005 ACS on STN

ACCESSION NUMBER: 2002:299588 CAPLUS

DOCUMENT NUMBER: 137:101065

TITLE: Development of hole-blocking amorphous  
molecular materials and their application in  
organic light-emitting  
diodes

AUTHOR(S): Shirota, Yasuhiko; Kinoshita, Motoi; Okumoto,  
Kenji

CORPORATE SOURCE: Department of Applied Chemistry, Faculty of  
Engineering, Osaka University, Yamadaoka,  
Suita, Osaka, 565-0871, Japan

SOURCE: Proceedings of SPIE-The International Society  
for Optical Engineering (2002), 4464(Organic  
Light-Emitting Materials and Devices V),  
203-210

PUBLISHER: CODEN: PSISDG; ISSN: 0277-786X  
SPIE-The International Society for Optical  
Engineering

DOCUMENT TYPE: Journal

LANGUAGE: English

AB A novel class of amorphous mol. materials, 1,3,5-tris(4-  
biphenyl)benzene (TBB), 1,3,5-tris(4-fluorobiphenyl-4'-  
yl)benzene (F-TBB), 1,3,5-tris(9,9-dimethylfluoren-2-yl)benzene  
(TFB), and 1,3,5-tris[4-(9,9-dimethylfluoren-2-yl)phenyl]benzene  
(TFPB), function as hole-blocking materials in organic  
electroluminescent (EL) devices. 1,3,5-Tris[5-  
(dimesitylboryl)thiophen-2-yl]benzene (TMB-TB) was also found to  
function as an electron transporter with better hole-blocking

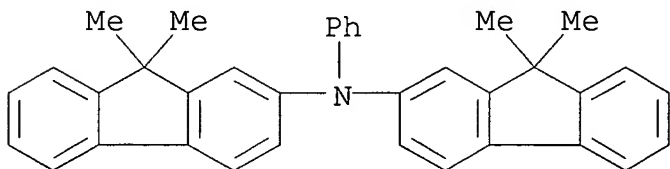
properties relative to tris(8-quinolinolato)aluminum. These materials, which readily form stable amorphous glasses with well-defined glass-transition temps., were characterized by relatively high oxidation potentials and large HOMO-LUMO energy gaps. The use of these materials as hole blockers in **multilayer** organic EL devices permitted efficient blue-violet emission from emitters with hole transporting properties, e.g., N,N'-bis(3-methylphenyl)-N,N'-diphenyl-[1,1'-biphenyl]-4,4'-diamine (TPD), N,N'-bis(4-biphenyl)-N,N'-diphenyl-[1,1'-biphenyl]-4,4'-diamine (p-BPD), N,N-bis(9,9-dimethylfluorene-2-yl)aniline (F2PA), N,N'-bis[9,9-dimethylfluorene-2-yl]-N,N'-diphenyl-9,9-dimethylfluorene-2,7-diamine (PFFA), and N,N,N',N'-tetrakis(9,9-dimethylfluorene-2-yl)-[1,1'-biphenyl]-4,4'-diamine (FFD).

IT 165320-27-4 216454-28-3 246857-02-3  
441352-90-5 441352-91-6

(development of hole-blocking amorphous mol. materials and application in organic **light-emitting** diodes)

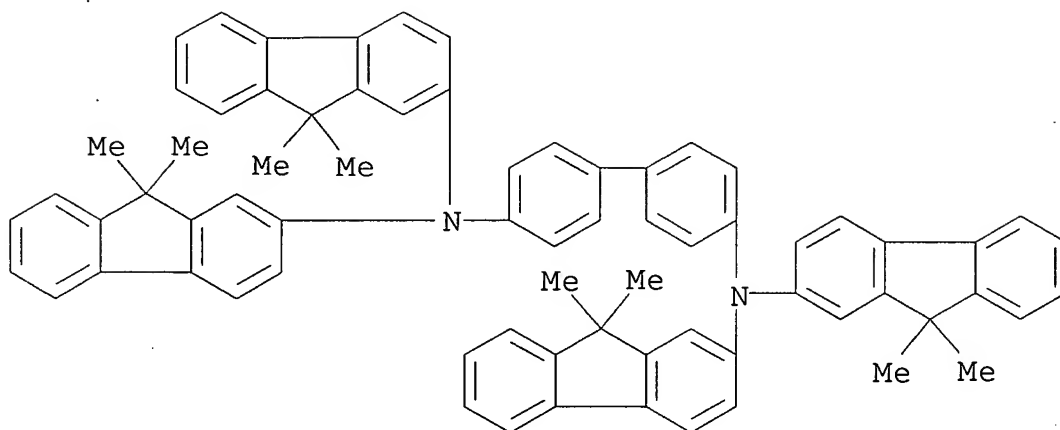
RN 165320-27-4 CAPLUS

CN 9H-Fluorene-2-amine, N-(9,9-dimethyl-9H-fluorene-2-yl)-9,9-dimethyl-N-phenyl- (9CI) (CA INDEX NAME)



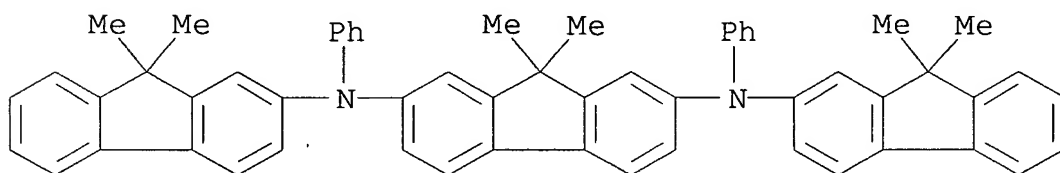
RN 216454-28-3 CAPLUS

CN [1,1'-Biphenyl]-4,4'-diamine, N,N,N',N'-tetrakis(9,9-dimethyl-9H-fluorene-2-yl)- (9CI) (CA INDEX NAME)



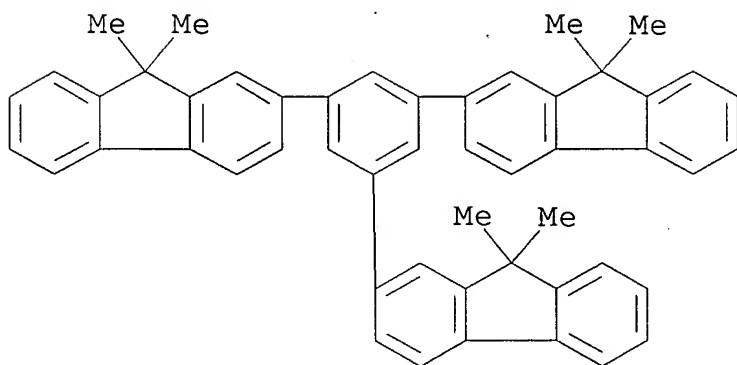
RN 246857-02-3 CAPLUS

CN 9H-Fluorene-2,7-diamine, N,N'-bis(9,9-dimethyl-9H-fluoren-2-yl)-  
9,9-dimethyl-N,N'-diphenyl- (9CI) (CA INDEX NAME)



RN 441352-90-5 CAPLUS

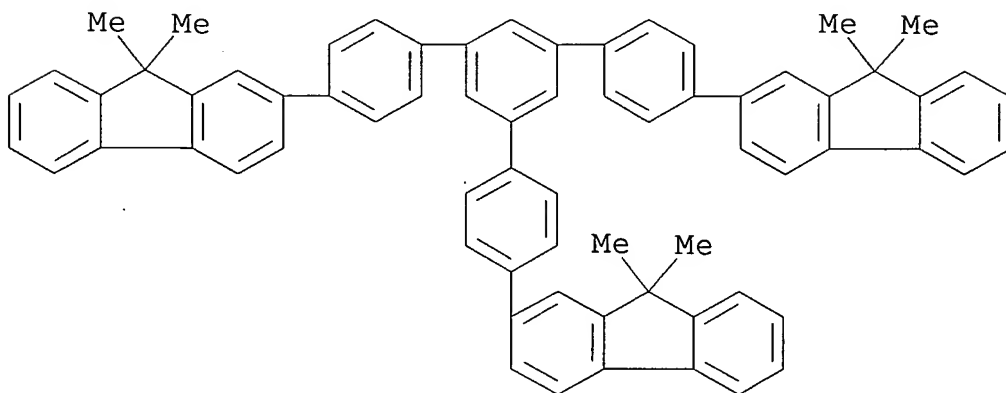
CN 9H-Fluorene, 2,2',2''-(1,3,5-benzenetriyl)tris[9,9-dimethyl- (9CI)  
(CA INDEX NAME)



RN 441352-91-6 CAPLUS

CN 9H-Fluorene, 2,2'-[5'-[4-(9,9-dimethyl-9H-fluoren-2-

yl)phenyl][1,1':3',1''-terphenyl]-4,4''-diyl]bis[9,9-dimethyl-  
(9CI) (CA INDEX NAME)



CC 73-11 (**Optical**, Electron, and Mass Spectroscopy and  
Other Related Properties)

Section cross-reference(s): 76

IT Electroluminescent devices

Electron transport

(development of hole-blocking amorphous mol. materials and  
application in organic **light-emitting** diodes)

IT 4733-39-5, Bathocuproine 65181-78-4, N,N'-Bis(3-methylphenyl)-  
N,N'-diphenyl-[1,1'-biphenyl]-4,4'-diamine 89410-40-2,

1,3,5-Tris(4-biphenyl)benzene 123847-85-8,  $\alpha$ -NPD

124729-98-2, MTDATA 134008-76-7 145693-79-4

**165320-27-4 216454-28-3 246857-02-3**

355832-02-9 372956-40-6 **441352-90-5**

**441352-91-6**

(development of hole-blocking amorphous mol. materials and  
application in organic **light-emitting** diodes)

REFERENCE COUNT: 28 THERE ARE 28 CITED REFERENCES AVAILABLE  
FOR THIS RECORD. ALL CITATIONS AVAILABLE  
IN THE RE FORMAT

L40 ANSWER 49 OF 65 CAPLUS COPYRIGHT 2005 ACS on STN

ACCESSION NUMBER: 2002:185253 CAPLUS

DOCUMENT NUMBER: 136:224030

TITLE: Organic electroluminescent element

INVENTOR(S): Arakane, Takashi; Fukuoka, Kenichi; Hosokawa,  
Chishio

PATENT ASSIGNEE(S): Idemitsu Kosan Co., Ltd., Japan

SOURCE: PCT Int. Appl., 44 pp.

CODEN: PIXXD2

DOCUMENT TYPE: Patent

LANGUAGE: Japanese  
 FAMILY ACC. NUM. COUNT: 1  
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2002020693	A1	20020314	WO 2001-JP7729	2001 0906
W: CN, JP, KR, US RW: AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, TR EP 1347031 A1 20030924 EP 2001-963466 2001 0906 R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR US 2003044643 A1 20030306 US 2002-111667 2002 0426 PRIORITY APPLN. INFO.: JP 2000-271707 A 2000 0907 WO 2001-JP7729 W 2001 0906				

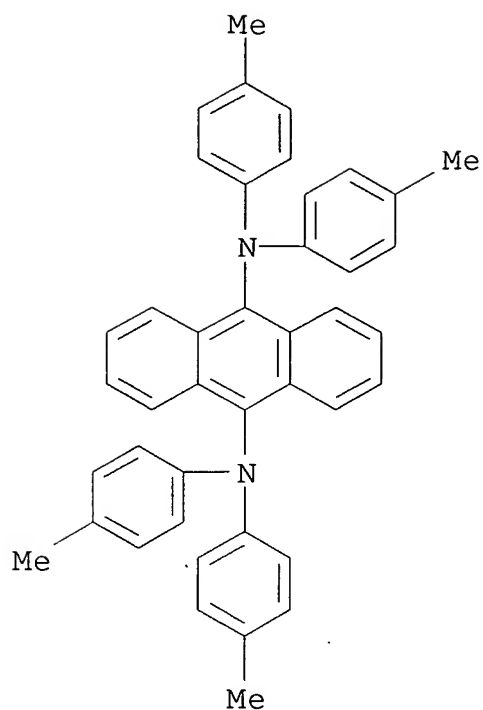
AB The invention refers to an organic electroluminescent element comprising an anode **layer**, an organic **luminescent layer**, an inorg. compound **layer** (or a **layer** containing a reducible dopant), and a cathode **layer**, wherein the organic **luminescent layer** comprises an aromatic amine compound [Ar1Ar2N]pA, and/or an aromatic amine compound [Ar3Ar4N]qB[NAr5Ar6]r [A, B, Ar1-6 = C6-60 aromatic containing neither styryl nor alkenyl; and at least one of A, Ar1, Ar2 or one of B, Ar3-6 comprises a fused aromatic ring with three or more rings; p, q, r = 1 - 6].

IT 177799-16-5 194296-06-5 247575-24-2  
 (organic electroluminescent element)

RN 177799-16-5 CAPLUS

CN 9,10-Anthracenediamine, N,N,N',N'-tetrakis(4-methylphenyl)- (9CI)  
 (CA INDEX NAME)

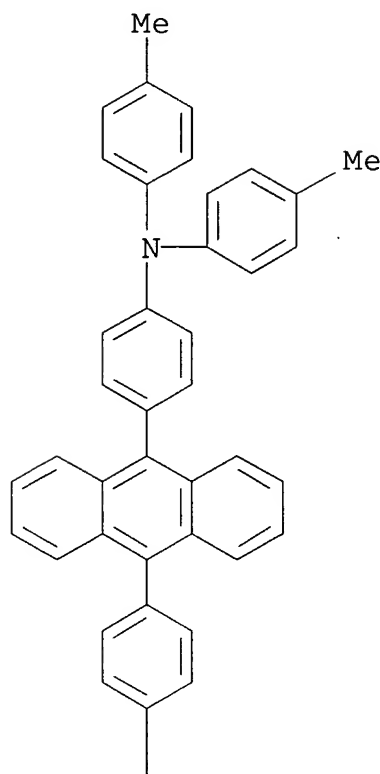




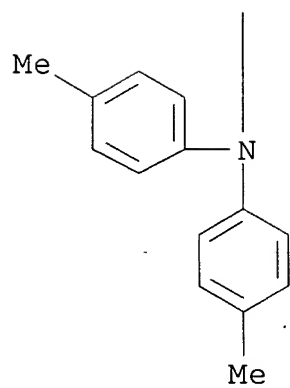
RN 194296-06-5 CAPLUS

CN Benzenamine, 4,4'-(9,10-anthracenediyl)bis[N,N-bis(4-methylphenyl)-  
(9CI) (CA INDEX NAME)

PAGE 1-A

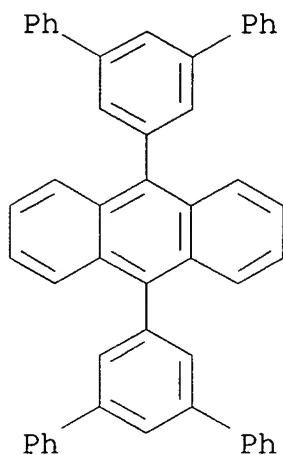


PAGE 2-A



RN 247575-24-2 CAPLUS  
CN Anthracene, 9,10-bis([1,1':3',1''-terphenyl]-5'-yl)- (9CI) (CA

INDEX NAME)



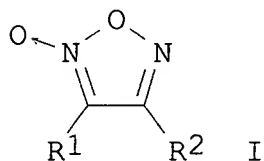
IC ICM C09K011-06  
ICS H05B033-14; H05B033-22  
CC 73-11 (Optical, Electron, and Mass Spectroscopy and  
Other Related Properties)  
IT 7789-24-4, Lithium fluoride, uses 22441-13-0, Lithium  
mono(2,2,6,6-tetramethyl-3,5-heptanedionato) 177799-16-5  
194296-06-5 227009-37-2 247575-24-2  
249288-60-6 364765-18-4 402824-81-1 402824-82-2  
402824-83-3 402824-84-4 402824-85-5 402824-86-6  
(organic electroluminescent element)

REFERENCE COUNT: 17 THERE ARE 17 CITED REFERENCES AVAILABLE  
FOR THIS RECORD. ALL CITATIONS AVAILABLE  
IN THE RE FORMAT

L40 ANSWER 50 OF 65 CAPLUS COPYRIGHT 2005 ACS on STN  
ACCESSION NUMBER: 2002:169590 CAPLUS  
DOCUMENT NUMBER: 136:207523  
TITLE: Furoxane compounds, and organic  
electroluminescent device employing same  
compounds  
INVENTOR(S): Suzuki, Koichi; Ueno, Kazunori; Sven,  
Andersson  
PATENT ASSIGNEE(S): Canon Inc., Japan  
SOURCE: Jpn. Kokai Tokkyo Koho, 26 pp.  
CODEN: JKXXAF  
DOCUMENT TYPE: Patent  
LANGUAGE: Japanese  
FAMILY ACC. NUM. COUNT: 1  
PATENT INFORMATION:

PATENT NO. -----	KIND ----	DATE -----	APPLICATION NO. -----	DATE
JP 2002069063	A2	20020308	JP 2000-260562	2000 0830
PRIORITY APPLN. INFO.:			JP 2000-260562	2000 0830

OTHER SOURCE(S):            MARPAT 136:207523  
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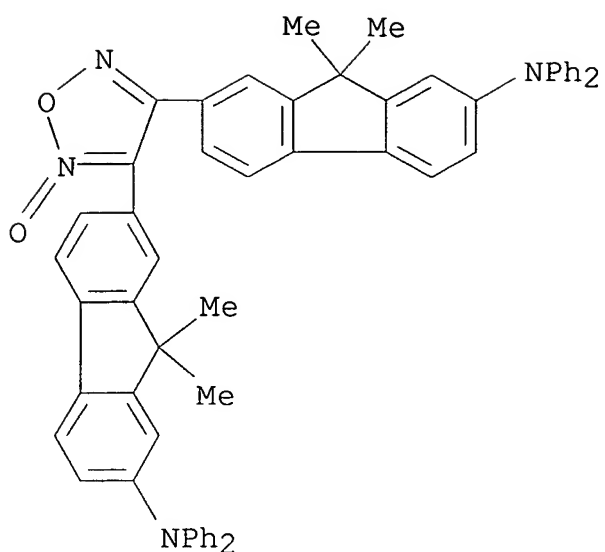


AB Furoxane compds. I [R1-2 = (substituted) aryl, heterocycle; R1 and R2 may form a ring] is claimed. Also claimed is an organic electroluminescent device containing the furoxane compound, preferably in a **light-emitting layer** or in an electron-transport **layer**. The electroluminescent device provide high luminous light at high efficiency, and shows long service life.

IT 401817-97-8 401818-09-5 401818-18-6  
(furoxane compds. for organic electroluminescent device)

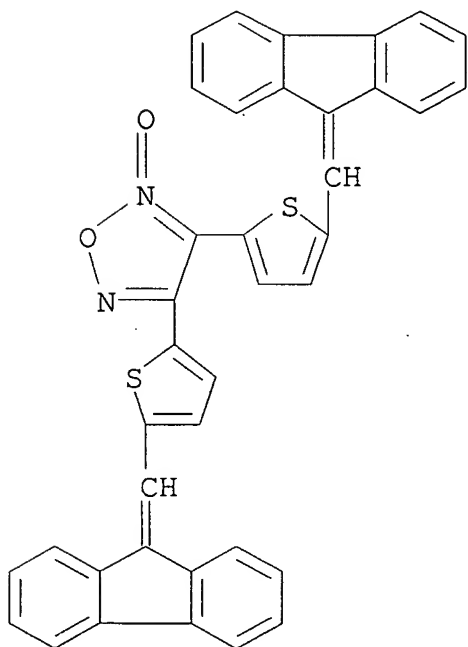
RN 401817-97-8 CAPLUS

CN 9H-Fluoren-2-amine, 7,7'-(2-oxido-1,2,5-oxadiazole-3,4-diyl)bis[9,9-dimethyl-N,N-diphenyl- (9CI) (CA INDEX NAME)



RN 401818-09-5 CAPLUS

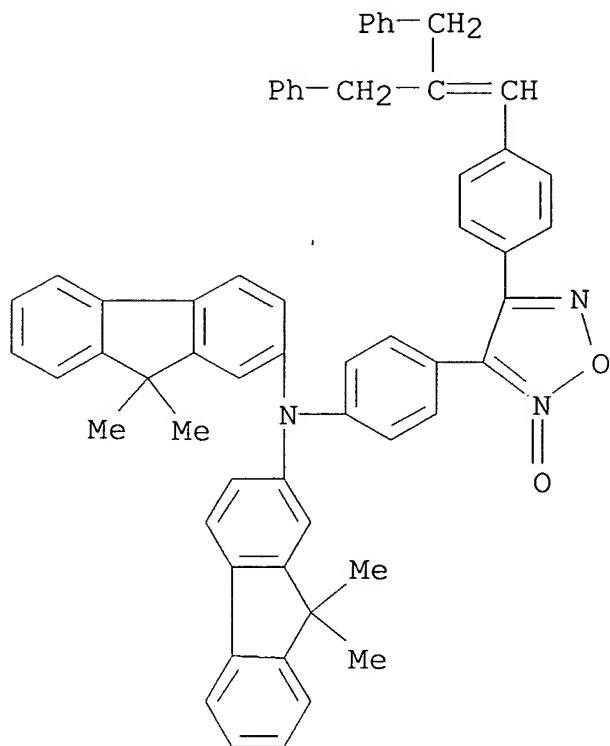
CN 1,2,5-Oxadiazole, 3,4-bis[5-(9H-fluoren-9-ylidenemethyl)-2-thienyl]-, 2-oxide (9CI) (CA INDEX NAME)



RN 401818-18-6 CAPLUS

CN 9H-Fluoren-2-amine, N-(9,9-dimethyl-9H-fluoren-2-yl)-9,9-dimethyl-N-[4-[2-oxido-4-[4-[3-phenyl-2-(phenylmethyl)-1-propenyl]phenyl]-2-thienyl]-5-(9H-fluoren-9-ylidenemethyl)-1,2,5-oxadiazole-2-oxide (9CI) (CA INDEX NAME)

1,2,5-oxadiazol-3-yl]phenyl]- (9CI) (CA INDEX NAME)

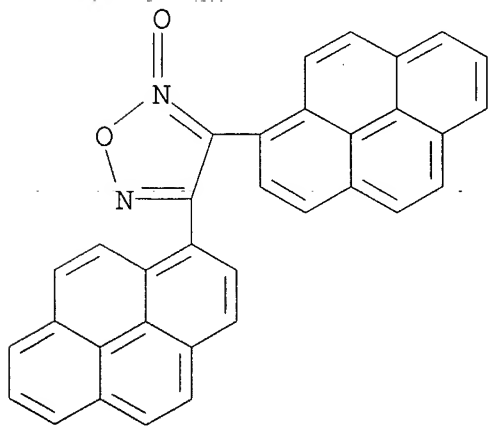


IT 401818-19-7P

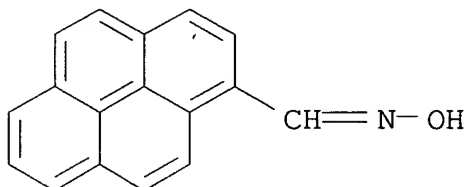
(furoxane compds. for organic electroluminescent device)

RN 401818-19-7 CAPLUS

CN 1,2,5-Oxadiazole, 3,4-di-1-pyrenyl-, 2-oxide (9CI) (CA INDEX NAME)



IT 3786-56-9  
(in preparation of furoxane compds. for organic electroluminescent device)  
RN 3786-56-9 CAPLUS  
CN 1-Pyrenecarboxaldehyde, oxime (7CI, 8CI, 9CI) (CA INDEX NAME)



IC ICM C07D271-08  
ICS C09K011-06; H05B033-14; H05B033-22  
CC 73-11 (Optical, Electron, and Mass Spectroscopy and Other Related Properties)  
Section cross-reference(s): 28  
IT 401817-94-5 401817-97-8 401817-99-0 401818-02-8  
401818-07-3 401818-09-5 401818-11-9 401818-13-1  
401818-17-5 401818-18-6 401818-20-0 401818-21-1  
401818-22-2  
(furoxane compds. for organic electroluminescent device)  
IT 401817-92-3P 401818-04-0P 401818-15-3P 401818-19-7P  
(furoxane compds. for organic electroluminescent device)  
IT 623-27-8, 1,4-Benzenedicarboxaldehyde 1884-65-7,  
Dicyanomethylene 3786-56-9 5470-11-1, Hydroxylamine  
hydrochloride 42906-19-4 147845-84-9  
(in preparation of furoxane compds. for organic electroluminescent device)

L40 ANSWER 51 OF 65 CAPLUS COPYRIGHT 2005 ACS on STN  
ACCESSION NUMBER: 2002:142641 CAPLUS  
DOCUMENT NUMBER: 136:191499  
TITLE: Hydrocarbon compound for organic electroluminescent elements and using them  
INVENTOR(S): Ishida, Tsutomu; Shimamura, Takehiko; Totani, Yoshiyuki; Nakatsuka, Masakatsu  
PATENT ASSIGNEE(S): Mitsui Chemicals, Inc., Japan  
SOURCE: PCT Int. Appl., 251 pp.  
CODEN: PIXXD2  
DOCUMENT TYPE: Patent  
LANGUAGE: Japanese  
FAMILY ACC. NUM. COUNT: 1  
PATENT INFORMATION:

PATENT NO. -----	KIND ----	DATE -----	APPLICATION NO. -----	DATE
WO 2002014244	A1	20020221	WO 2001-JP6920	2001 0810
W: KR, US RW: DE, FR, NL JP 2002154993	A2	20020528	JP 2001-243306	2001 0810
EP 1221434	A1	20020710	EP 2001-955670	2001 0810
R: DE, FR, NL US 2003087126	A1	20030508	US 2002-110241	2002 0410
PRIORITY APPLN. INFO.:			JP 2000-242476	A 2000 0810
			JP 2000-268568	A 2000 0905
			JP 2000-24276	A 2000 0810
			WO 2001-JP6920	W 2001 0810

OTHER SOURCE(S): MARPAT 136:191499

AB Title electroluminescent elements comprise one pair of electrodes and pinched between the electrodes,  $\geq 1$  layer(s) containing  $\geq 1$  novel hydrocarbon compound in a general formula  $X1(F1)j(A1)k(F2)l(A2)m(F3)nX2$  [ $A1-2 = (\text{un})\text{substituted anthracenediyl}$ ;  $F1-3 = (\text{un})\text{substituted fluorenediyl}$ ;  $X1-2 = \text{H, halo, straight, branched or cyclic alkyl, alkoxy, amino, aryl, or } (\text{un})\text{substituted amino, aryl or aralkyl, } j, m, n = 0, 1; k, l = 1, 2]$  having an anthracene ring and a fluorene ring which are directly bonded with each other. The compound can be suitably used for preparing an organic electroluminescent element being excellent in luminous efficiency and having a long luminous life.

IT 400605-76-7 400605-78-9 400605-79-0

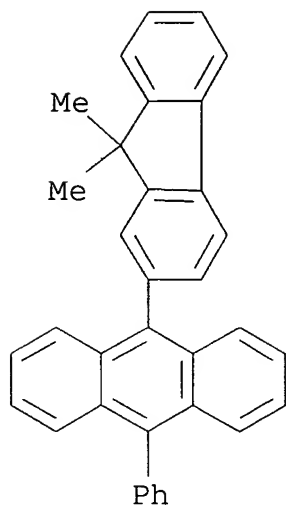


400605-81-4 400605-82-5 400605-84-7  
400605-85-8 400605-87-0 400605-88-1  
400605-90-5 400605-92-7 400605-94-9  
400605-96-1 400605-97-2 400605-99-4  
400606-00-0 400606-02-2 400606-03-3  
400606-04-4 400606-06-6 400606-07-7  
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(preparation of hydrocarbon compound for organic electroluminescent devices)

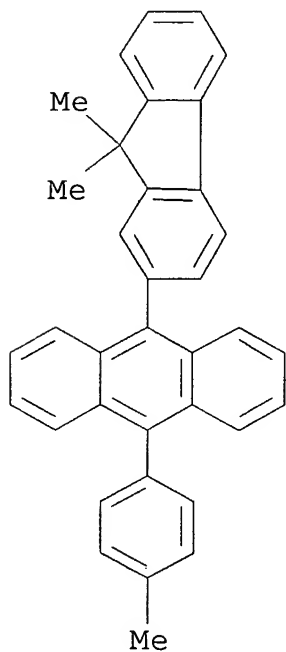
RN 400605-76-7 CAPLUS

CN Anthracene, 9-(9,9-dimethyl-9H-fluoren-2-yl)-10-phenyl- (9CI) (CA  
INDEX NAME)



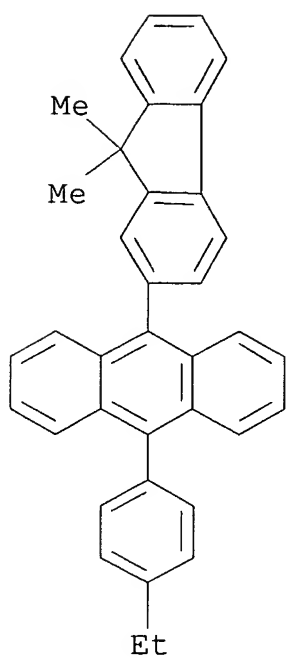
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CN Anthracene, 9-(9,9-dimethyl-9H-fluoren-2-yl)-10-(4-methylphenyl)-  
(9CI) (CA INDEX NAME)



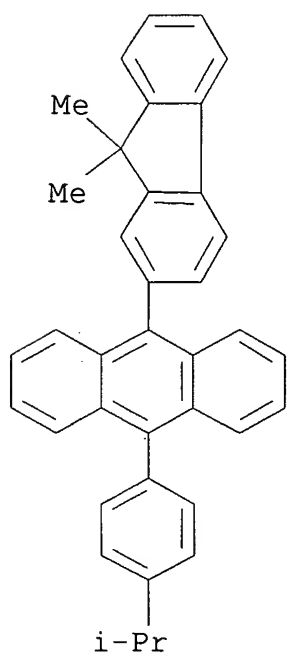
RN 400605-79-0 CAPLUS

CN Anthracene, 9-(9,9-dimethyl-9H-fluoren-2-yl)-10-(4-ethylphenyl)-  
(9CI) (CA INDEX NAME)

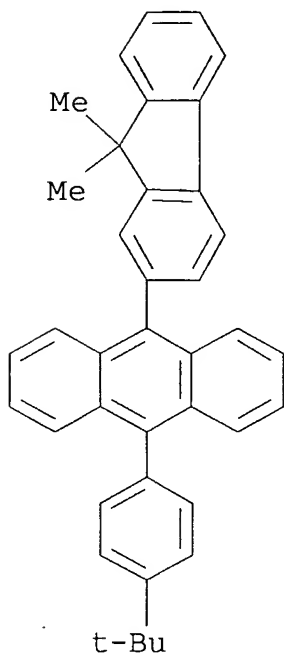


RN 400605-81-4 CAPLUS

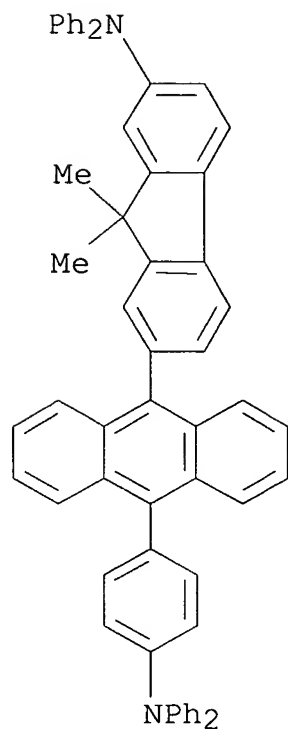
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✓ RN 400605-82-5 CAPLUS  
CN Anthracene, 9-[4-(1,1-dimethylethyl)phenyl]-10-(9,9-dimethyl-9H-fluoren-2-yl)- (9CI) (CA INDEX NAME)



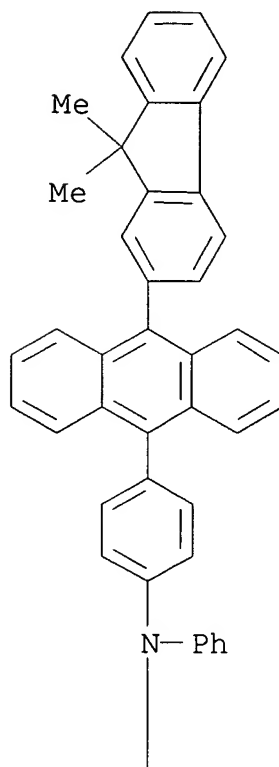
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CN 9H-Fluoren-2-amine, 7-[10-[4-(diphenylamino)phenyl]-9-anthracenyl]-9,9-dimethyl-N,N-diphenyl- (9CI) (CA INDEX NAME)



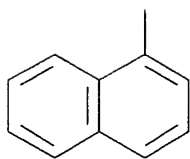
RN 400605-85-8 CAPLUS

CN 1-Naphthalenamine, N-[4-[10-(9,9-dimethyl-9H-fluoren-2-yl)-9-anthracenyl]phenyl]-N-phenyl- (9CI) (CA INDEX NAME)

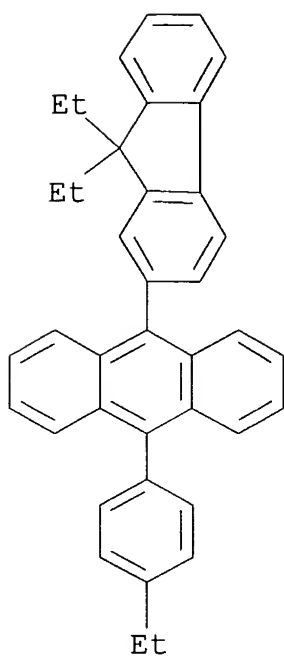
PAGE 1-A



PAGE 2-A

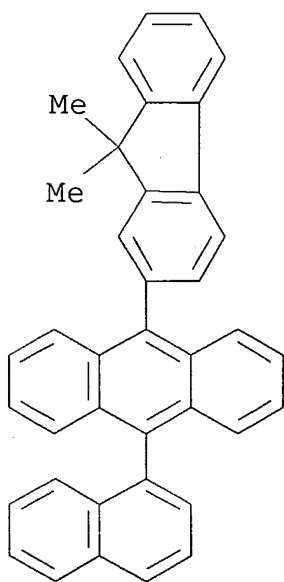


RN 400605-87-0 CAPLUS  
 CN Anthracene, 9-(9,9-diethyl-9H-fluoren-2-yl)-10-(4-ethylphenyl)-  
 (9CI) (CA INDEX NAME)



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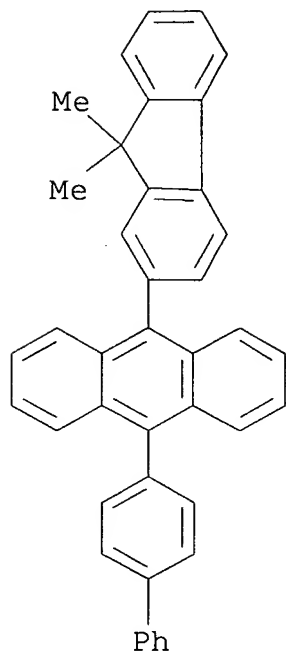
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(9CI) (CA INDEX NAME)



RN 400605-90-5 CAPLUS

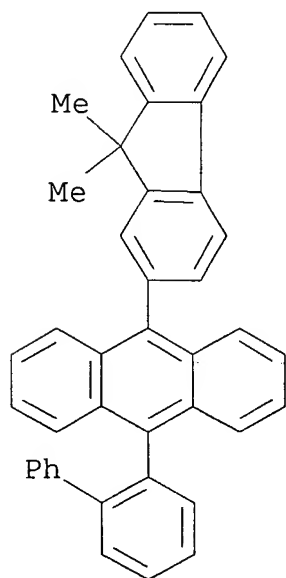
CN Anthracene, 9-[1,1'-biphenyl]-4-yl-10-(9,9-dimethyl-9H-fluoren-2-

yl)- (9CI) (CA INDEX NAME)



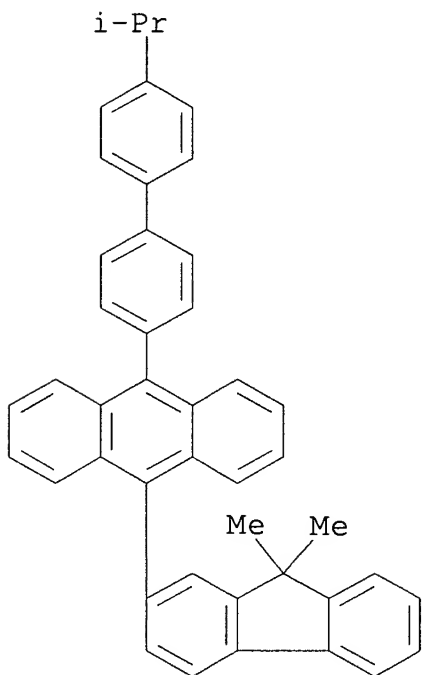
RN 400605-92-7 CAPLUS

CN Anthracene, 9-[1,1'-biphenyl]-2-yl-10-(9,9-dimethyl-9H-fluoren-2-yl)- (9CI) (CA INDEX NAME)

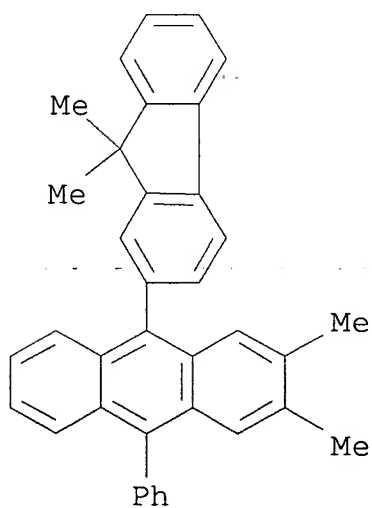




RN 400605-94-9 CAPLUS  
CN Anthracene, 9-(9,9-dimethyl-9H-fluoren-2-yl)-10-[4'-(1-methylethyl)[1,1'-biphenyl]-4-yl]- (9CI) (CA INDEX NAME)

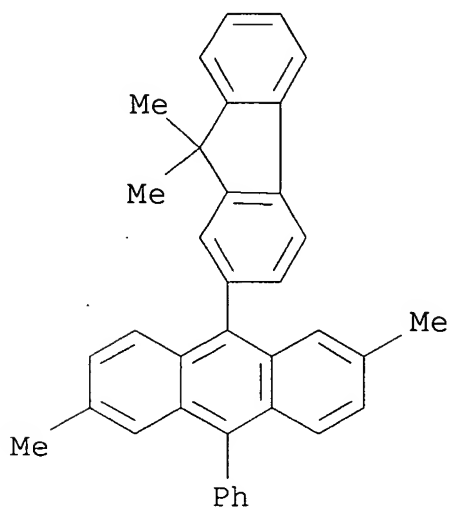


RN 400605-96-1 CAPLUS  
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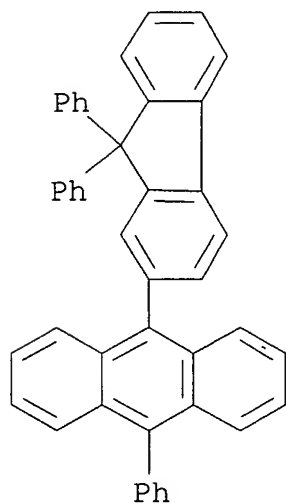
RN 400605-97-2 CAPLUS

CN Anthracene, 9-(9,9-dimethyl-9H-fluoren-2-yl)-2,6-dimethyl-10-phenyl- (9CI) (CA INDEX NAME)



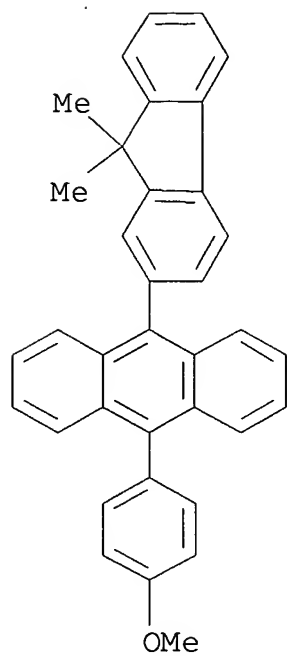
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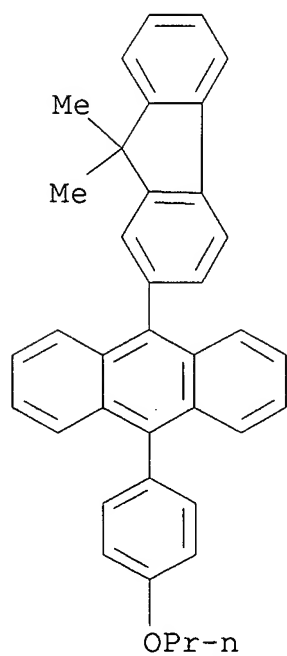
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CN Anthracene, 9-(9,9-dimethyl-9H-fluoren-2-yl)-10-(4-methoxyphenyl)- (9CI) (CA INDEX NAME)



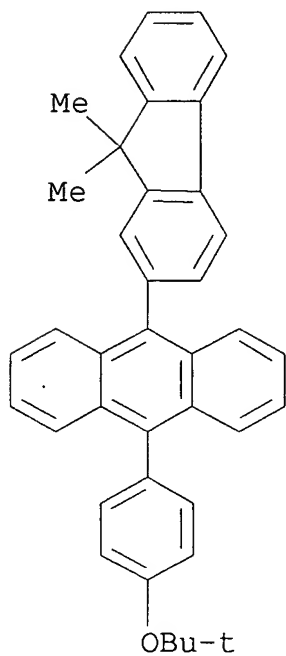
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CN Anthracene, 9-(9,9-dimethyl-9H-fluoren-2-yl)-10-(4-propoxyphenyl)-  
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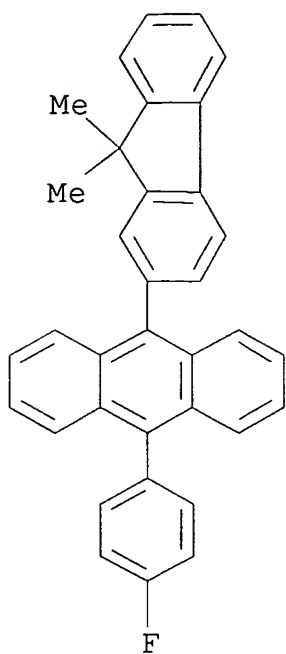
RN 400606-03-3 CAPLUS

CN Anthracene, 9-[4-(1,1-dimethylethoxy)phenyl]-10-(9,9-dimethyl-9H-fluoren-2-yl)- (9CI) (CA INDEX NAME)



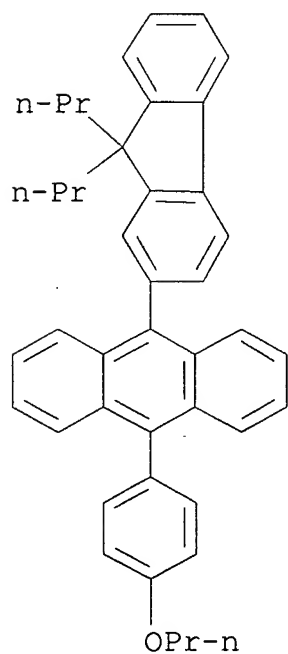
RN 400606-04-4 CAPLUS

CN Anthracene, 9-(9,9-dimethyl-9H-fluoren-2-yl)-10-(4-fluorophenyl)- (9CI) (CA INDEX NAME)

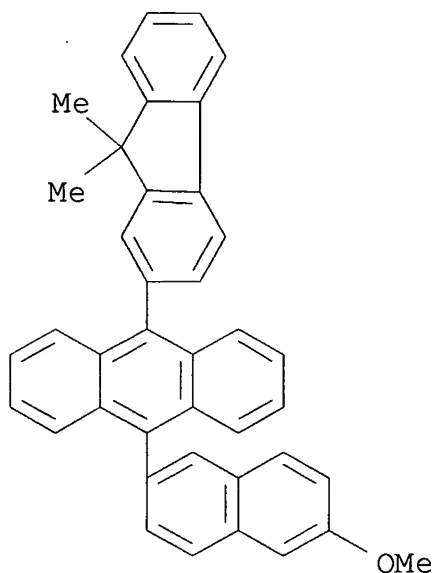


RN 400606-06-6 CAPLUS

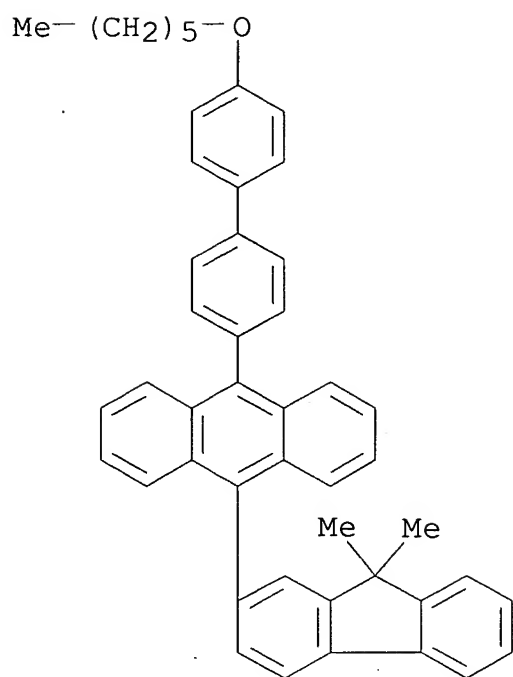
CN Anthracene, 9-(9,9-dipropyl-9H-fluoren-2-yl)-10-(4-propoxyphenyl)-  
(9CI) (CA INDEX NAME)



RN 400606-07-7 CAPLUS  
CN Anthracene, 9-(9,9-dimethyl-9H-fluoren-2-yl)-10-(6-methoxy-2-naphthalenyl)- (9CI) (CA INDEX NAME)

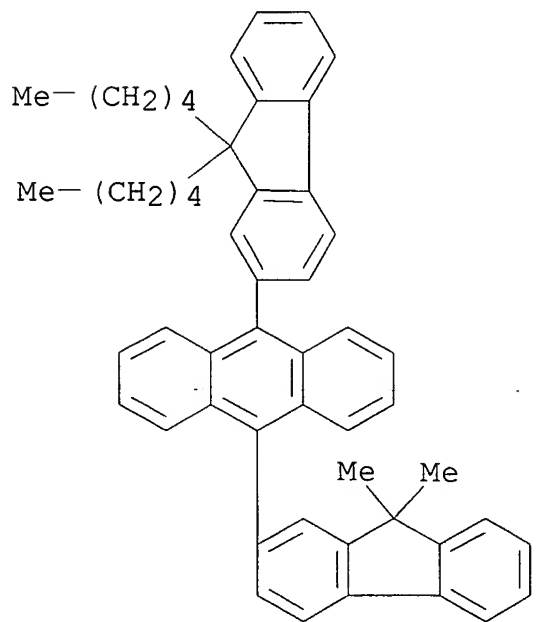


RN 400606-08-8 CAPLUS  
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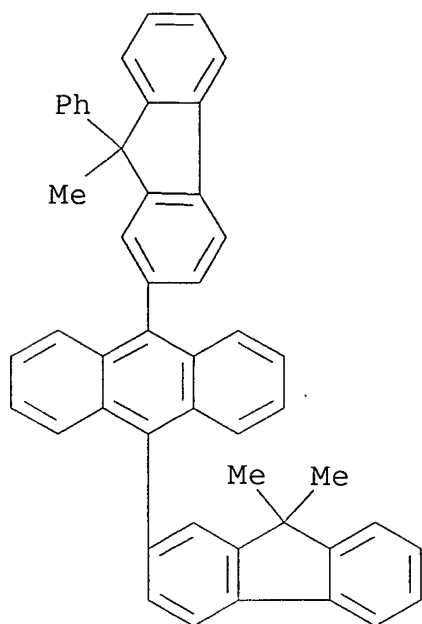
RN 400606-09-9 CAPLUS

CN Anthracene, 9-(9,9-dimethyl-9H-fluoren-2-yl)-10-(9,9-dipentyl-9H-fluoren-2-yl)- (9CI) (CA INDEX NAME)



RN 400606-10-2 CAPLUS

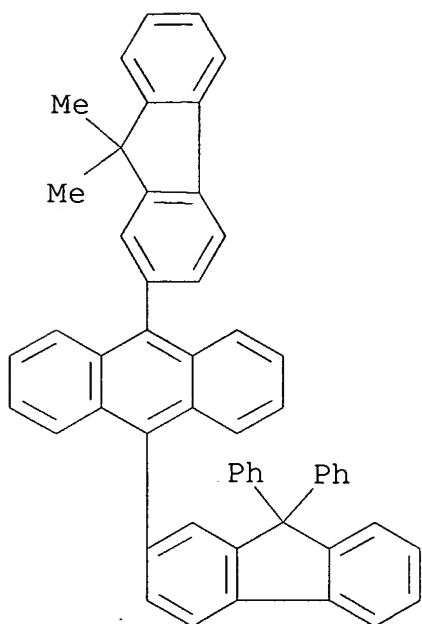
CN Anthracene, 9-(9,9-dimethyl-9H-fluoren-2-yl)-10-(9-methyl-9-phenyl-9H-fluoren-2-yl)- (9CI) (CA INDEX NAME)



RN 400606-11-3 CAPLUS

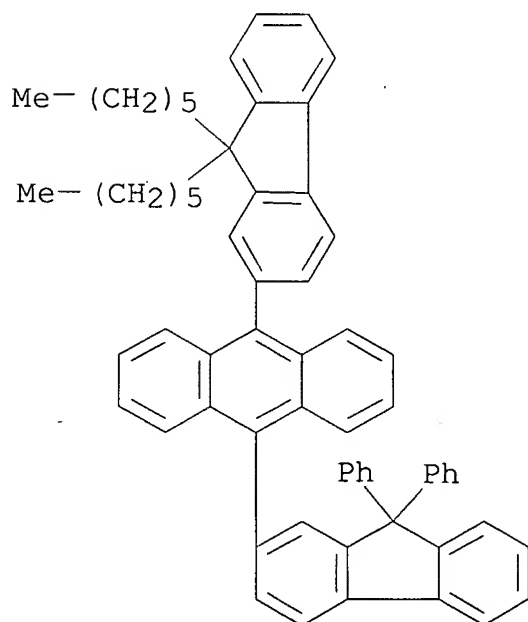
CN Anthracene, 9-(9,9-dimethyl-9H-fluoren-2-yl)-10-(9,9-diphenyl-9H-fluoren-2-yl)- (9CI) (CA INDEX NAME)





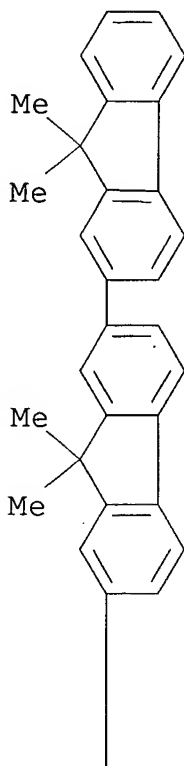
RN 400606-12-4 CAPLUS

CN Anthracene, 9-(9,9-dihexyl-9H-fluoren-2-yl)-10-(9,9-diphenyl-9H-fluoren-2-yl)- (9CI) (CA INDEX NAME)

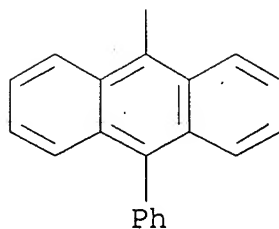


. RN 400606-14-6 CAPLUS  
CN Anthracene, 9-phenyl-10-(9,9,9',9'-tetramethyl[2,2'-bi-9H-fluoren]-7-yl)- (9CI) (CA INDEX NAME)

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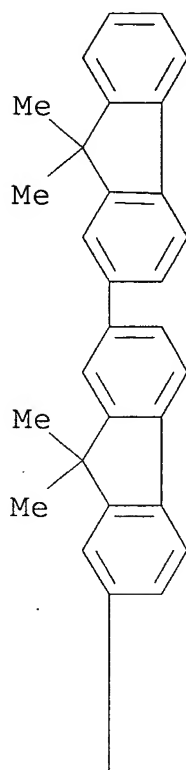


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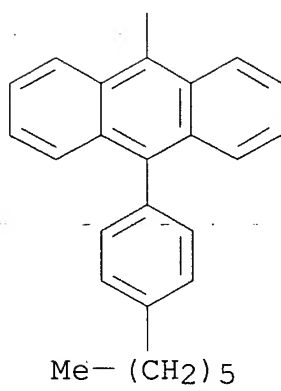


RN 400606-15-7 CAPLUS  
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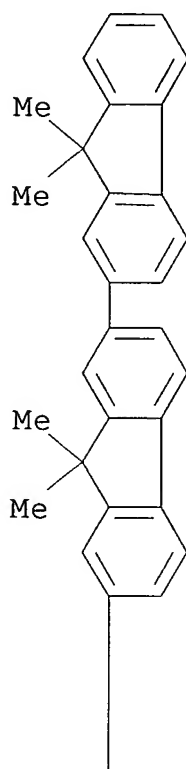


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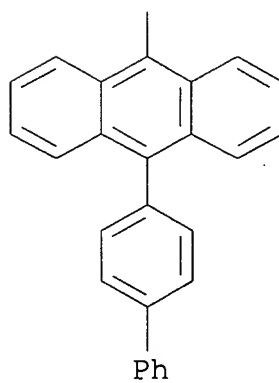


. CN Anthracene, 9-[1,1'-biphenyl]-4-yl-10-(9,9,9',9'-tetramethyl[2,2'-bi-9H-fluoren]-7-yl)- (9CI) (CA INDEX NAME)

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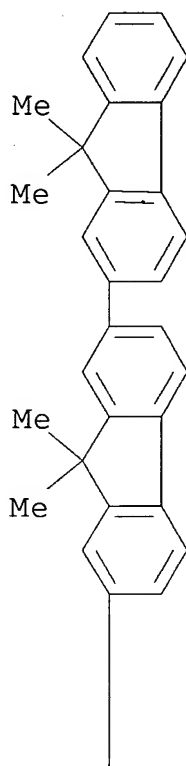


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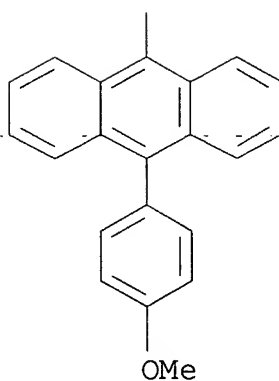


. RN 400606-18-0 CAPLUS  
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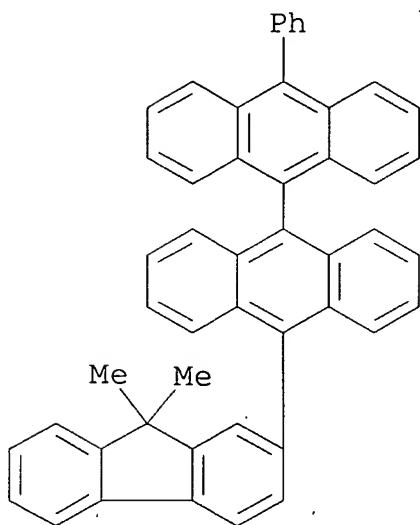
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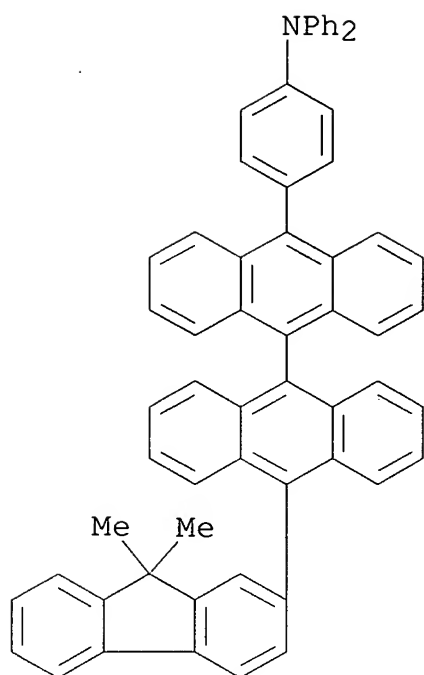


RN 400606-19-1 CAPLUS

CN 9,9'-Bianthrane, 10-(9,9-dimethyl-9H-fluoren-2-yl)-10'-phenyl-  
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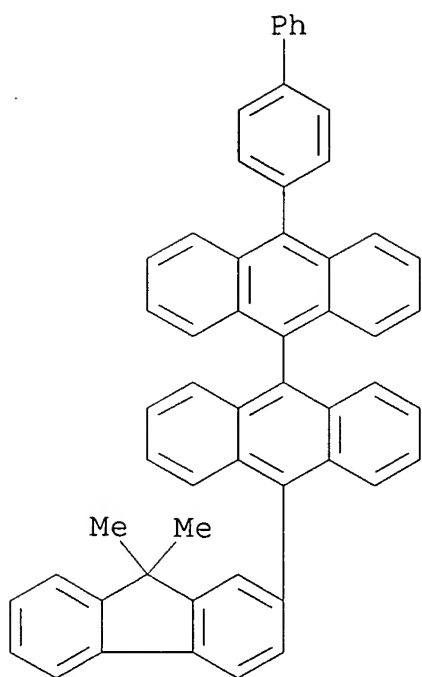
RN 400606-20-4 CAPLUS

CN Benzenamine, 4-[10'-(9,9-dimethyl-9H-fluoren-2-yl)[9,9'-  
bianthrane]-10-yl]-N,N-diphenyl- (9CI) (CA INDEX NAME)



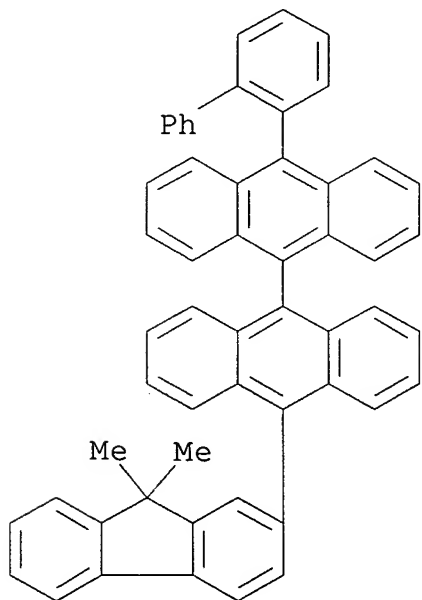
RN 400606-21-5 CAPLUS

CN 9,9'-Bianthrane, 10-[1,1'-biphenyl]-4-yl-10'-(9,9-dimethyl-9H-fluoren-2-yl)-(9CI) (CA INDEX NAME)



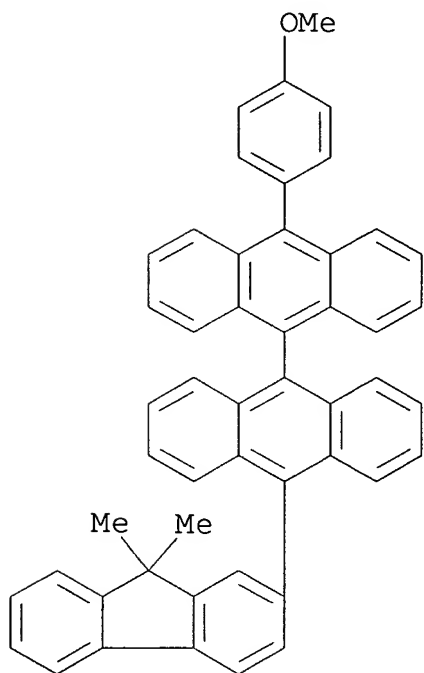
RN 400606-22-6 CAPLUS

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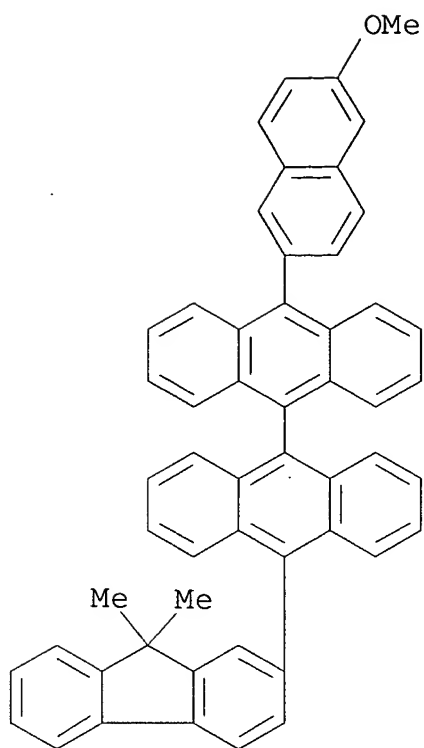




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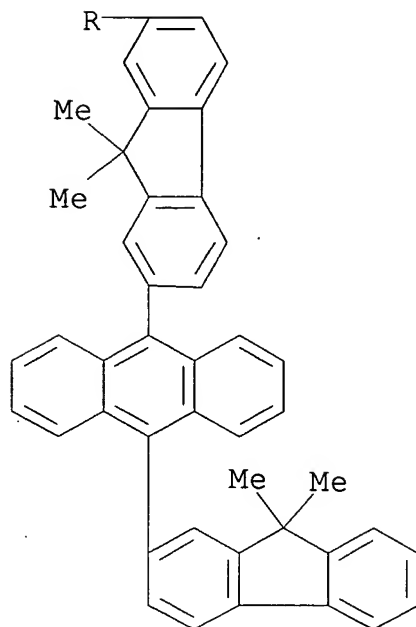
RN 400606-24-8 CAPLUS  
CN 9,9'-Bianthrane, 10-(9,9-dimethyl-9H-fluoren-2-yl)-10'-(6-methoxy-2-naphthalenyl)- (9CI) (CA INDEX NAME)



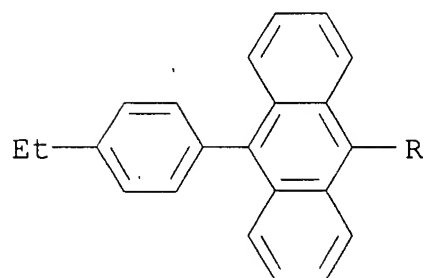
RN 400606-26-0 CAPLUS

CN Anthracene, 9-[7-[10-(9,9-dimethyl-9H-fluoren-2-yl)-9-anthracenyl]-  
9,9-dimethyl-9H-fluoren-2-yl]-10-(4-ethylphenyl)- (9CI) (CA INDEX  
NAME)

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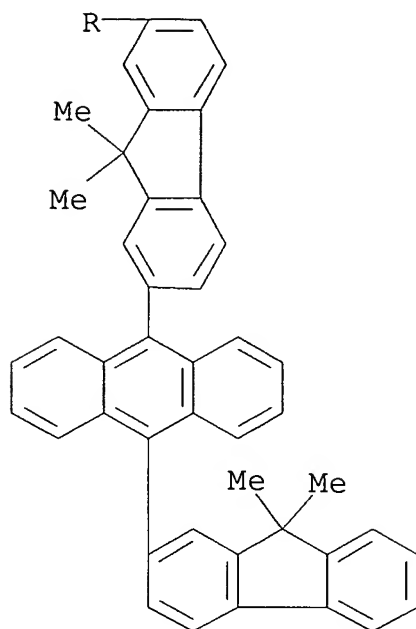


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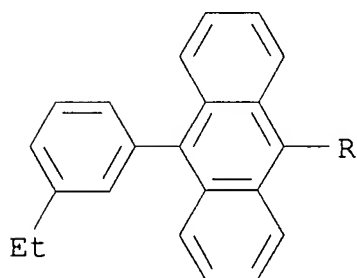


RN 400606-28-2 CAPLUS  
CN Anthracene, 9-[7-[10-(9,9-dimethyl-9H-fluorene-2-yl)-9-anthracenyl]-  
9,9-dimethyl-9H-fluorene-2-yl]-10-(3-ethylphenyl)- (9CI) (CA INDEX  
NAME)

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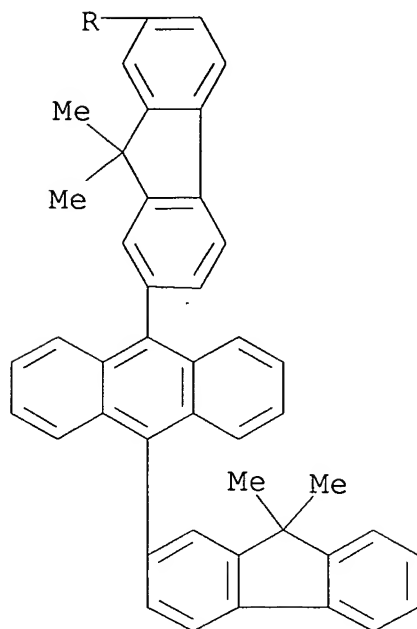


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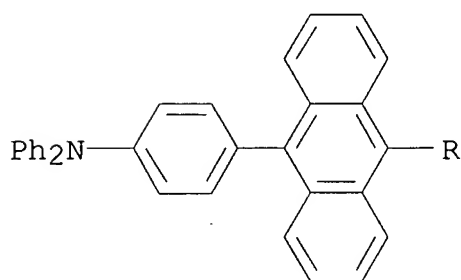


RN 400606-30-6 CAPLUS  
CN Benzenamine, 4-[10-[7-[10-(9,9-dimethyl-9H-fluoren-2-yl)-9-anthracenyl]-9,9-dimethyl-9H-fluoren-2-yl]-9-anthracenyl]-N,N-diphenyl- (9CI) (CA INDEX NAME)

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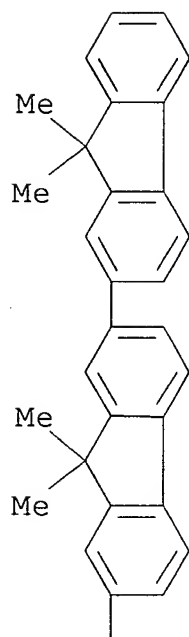


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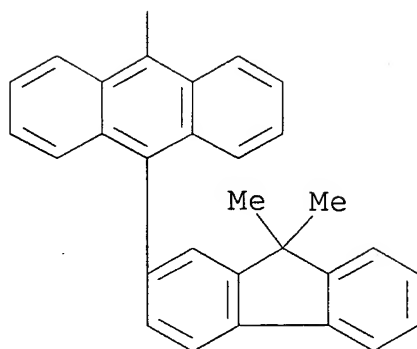


RN 400606-32-8 CAPLUS  
CN Anthracene, 9-(9,9-dimethyl-9H-fluoren-2-yl)-10-(9,9,9',9'-  
tetramethyl[2,2'-bi-9H-fluoren]-7-yl)- (9CI) (CA INDEX NAME)

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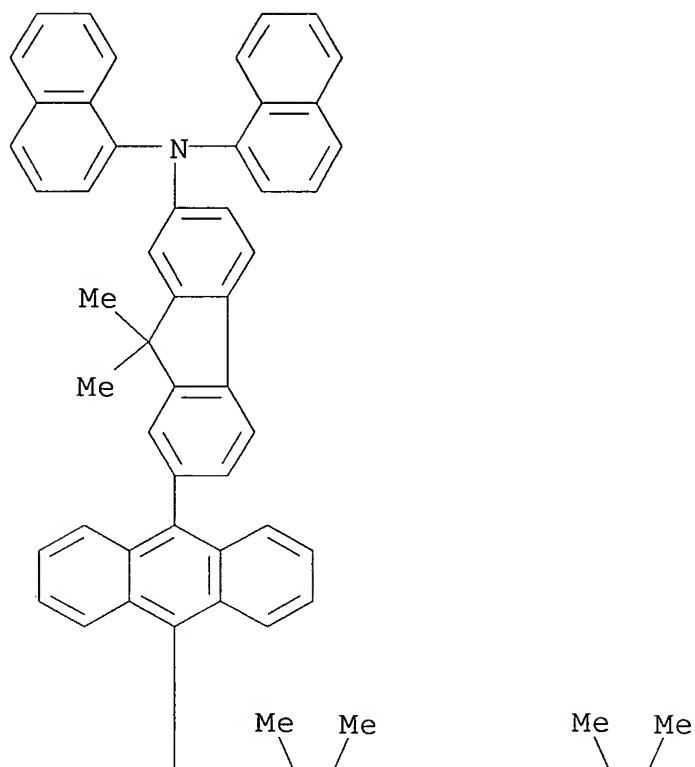
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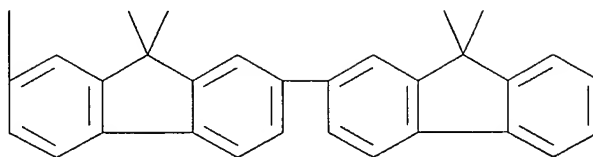
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 CN 9H-Fluoren-2-amine, 9,9-dimethyl-N,N-di-1-naphthalenyl-7-[10-(9,9,9',9'-tetramethyl[2,2'-bi-9H-fluoren]-7-yl)-9-anthracenyl]-

(9CI) (CA INDEX NAME)

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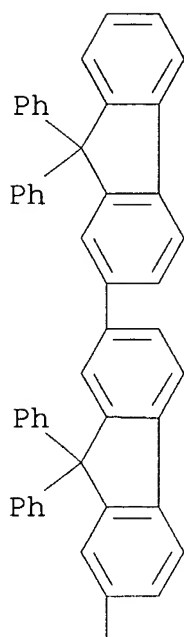


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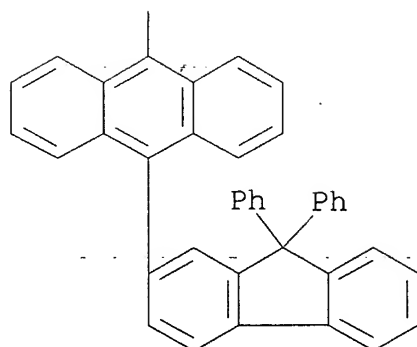


RN 400606-35-1 CAPLUS  
 CN Anthracene, 9-(9,9-diphenyl-9H-fluoren-2-yl)-10-(9,9,9',9'-  
 tetraphenyl[2,2'-bi-9H-fluoren]-7-yl)- (9CI) (CA INDEX NAME)

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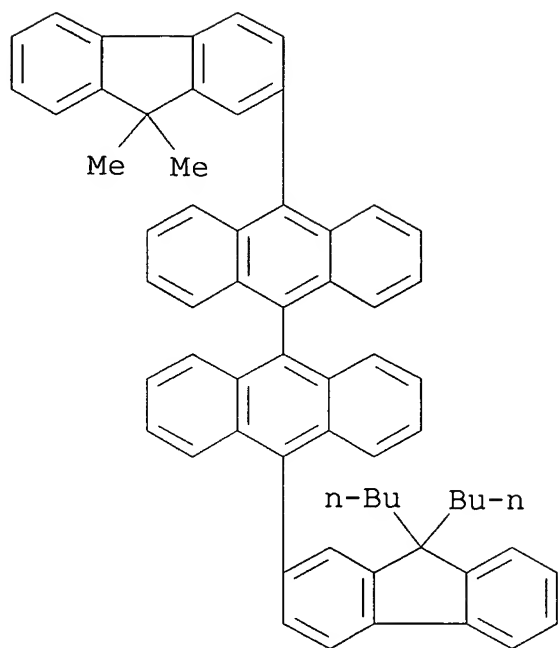


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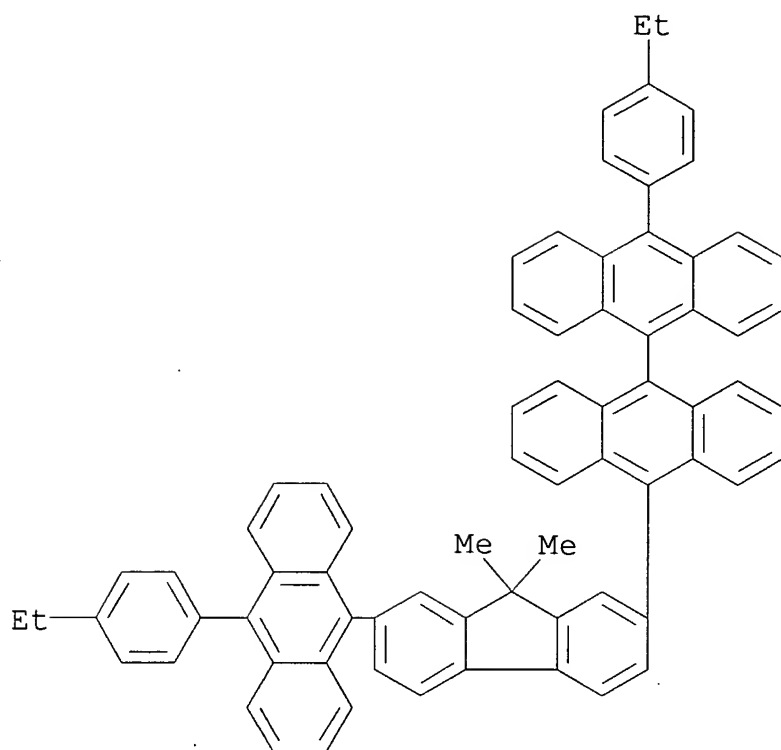
RN 400606-37-3 CAPLUS  
 CN 9,9'-Bianthracene, 10-(9,9-diphenyl-9H-fluoren-2-yl)-10'-(9,9-dimethyl-9H-fluoren-2-yl)- (9CI) (CA INDEX NAME)





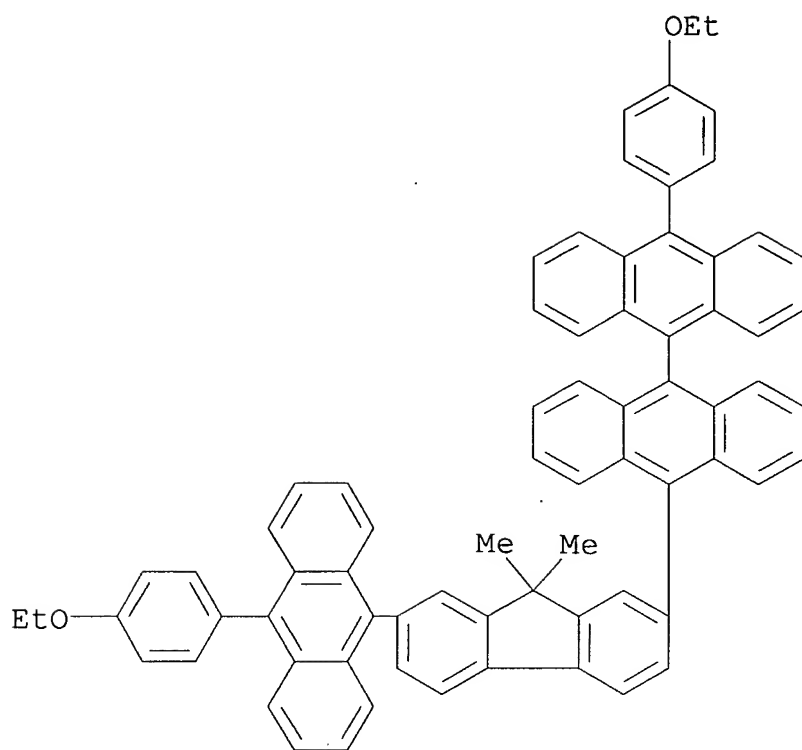
RN 400606-39-5 CAPLUS

CN 9,9'-Bianthracene, 10-(4-ethylphenyl)-10'-[7-[10-(4-ethylphenyl)-9-anthracenyl]-9,9-dimethyl-9H-fluoren-2-yl]- (9CI) (CA INDEX NAME)



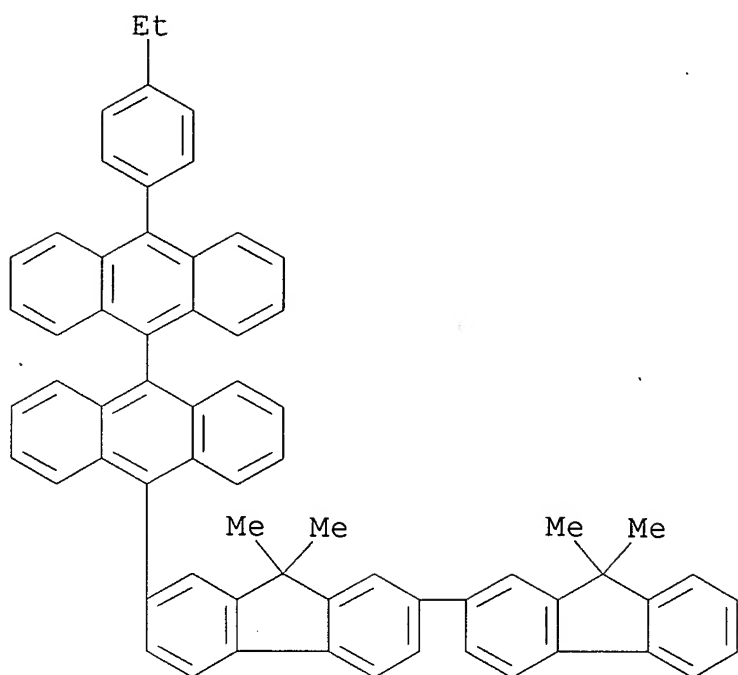
RN 400606-41-9 CAPLUS

CN 9,9'-Bianthracene, 10-(4-ethoxyphenyl)-10'-[7-[10-(4-ethoxyphenyl)-9-anthracenyl]-9,9-dimethyl-9H-fluoren-2-yl]- (9CI) (CA INDEX NAME)



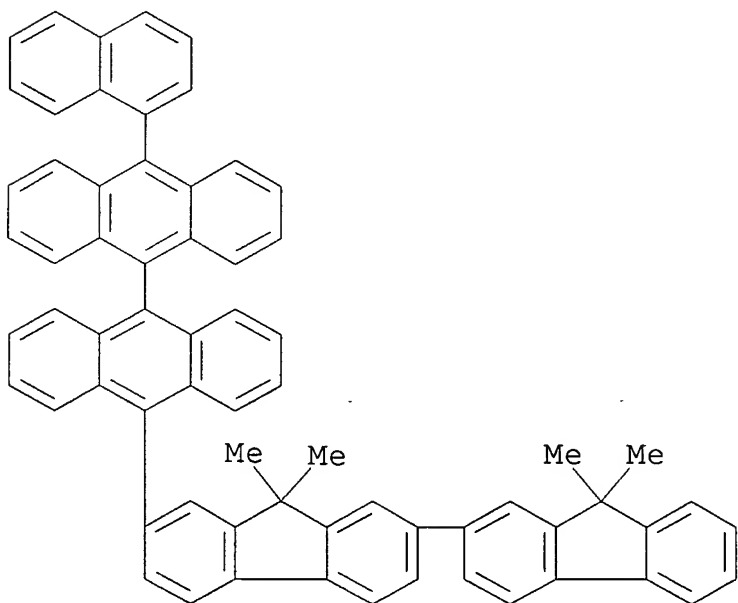
RN 400606-43-1 CAPLUS

CN 9,9'-Bianthracene, 10-(4-ethylphenyl)-10'-(9,9,9',9'-  
tetramethyl[2,2'-bi-9H-fluoren]-7-yl)- (9CI) (CA INDEX NAME)

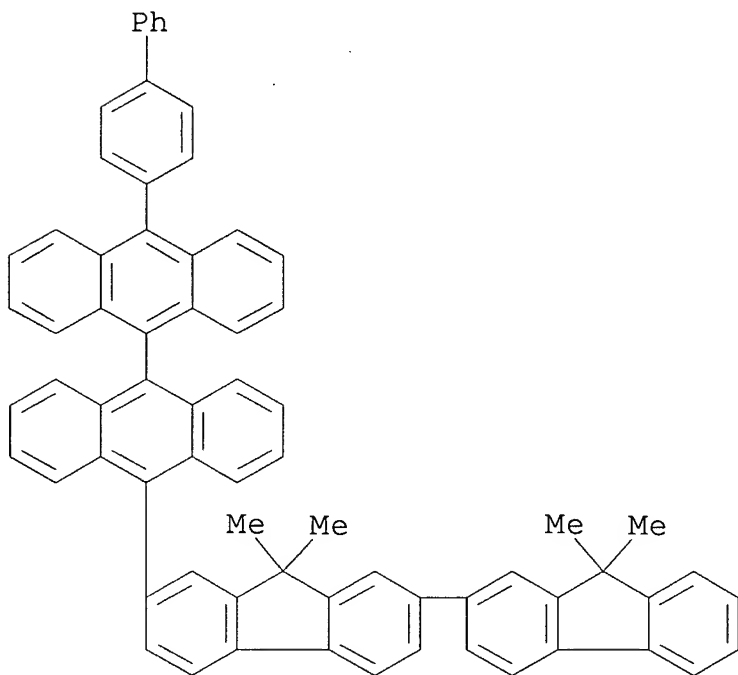


RN 400606-45-3 CAPLUS

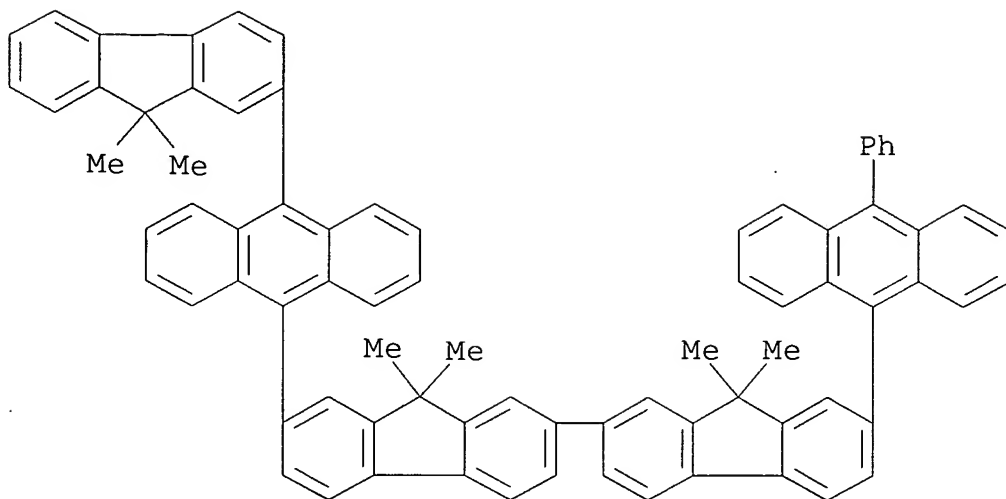
CN 9,9'-Bianthracene, 10-(1-naphthalenyl)-10'-(9,9,9',9'-  
tetramethyl[2,2'-bi-9H-fluoren]-7-yl)- (9CI) (CA INDEX NAME)



RN 400606-47-5 CAPLUS  
CN 9,9'-Bianthrane, 10-[1,1'-biphenyl]-4-yl-10'-(9,9,9',9'-tetramethyl[2,2'-bi-9H-fluorene]-7-yl)- (9CI) (CA INDEX NAME)

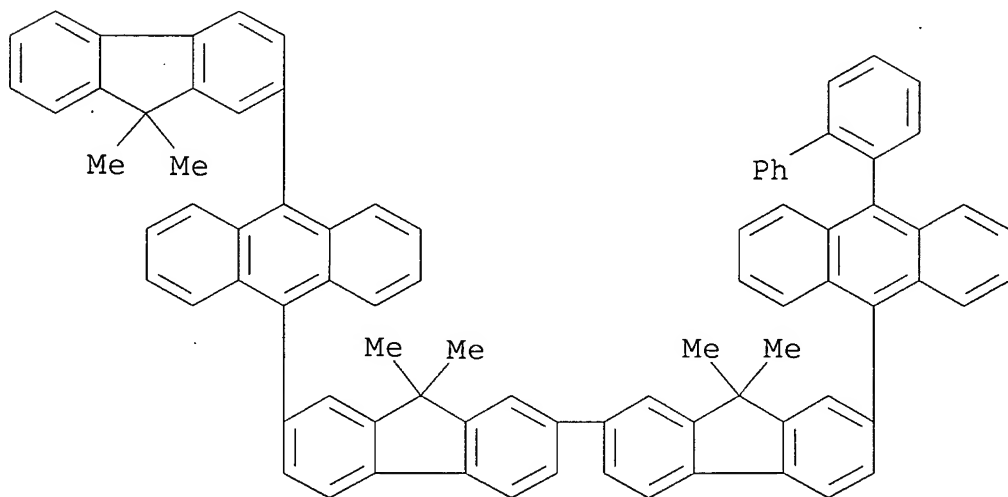


RN 400606-48-6 CAPLUS  
CN Anthracene, 9-[7'-[10-(9,9-dimethyl-9H-fluorene-2-yl)-9-anthracenyl]-9,9,9',9'-tetramethyl[2,2'-bi-9H-fluorene]-7-yl]-10-phenyl- (9CI) (CA INDEX NAME)



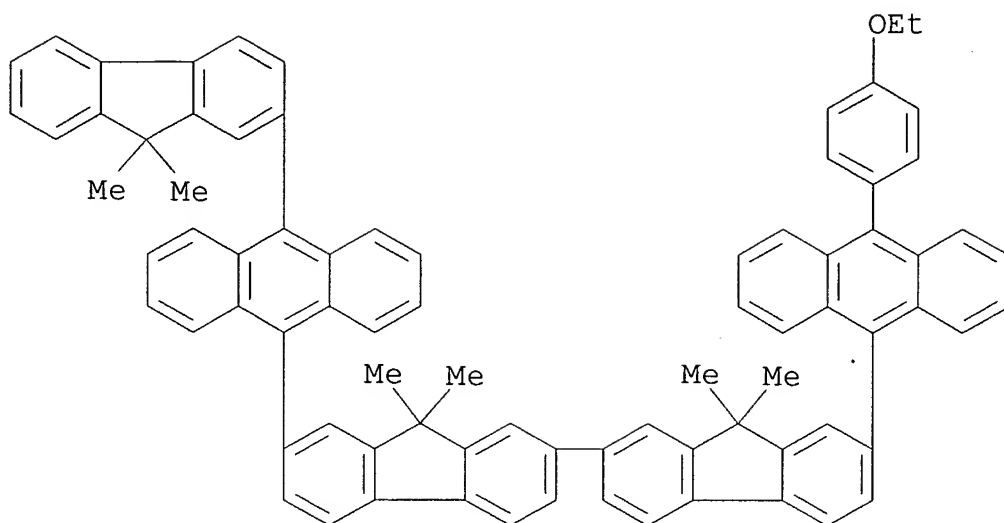
RN 400606-49-7 CAPLUS

CN Anthracene, 9-[7'-(10-[1,1'-biphenyl]-2-yl)-9-anthracenyl]-9,9,9',9'-tetramethyl[2,2'-bi-9H-fluoren]-7-yl]-10-(9,9-dimethyl-9H-fluoren-2-yl)- (9CI) (CA INDEX NAME)



RN 400606-50-0 CAPLUS

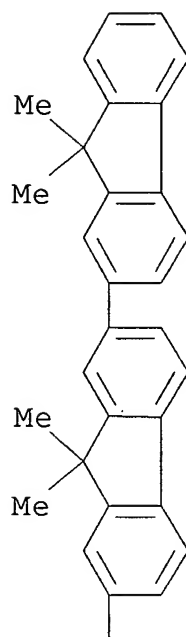
CN Anthracene, 9-[7'-[10-(9,9-dimethyl-9H-fluoren-2-yl)-9-anthracenyl]-9,9,9',9'-tetramethyl[2,2'-bi-9H-fluoren]-7-yl]-10-(4-ethoxyphenyl)- (9CI) (CA INDEX NAME)



RN 400606-51-1 CAPLUS

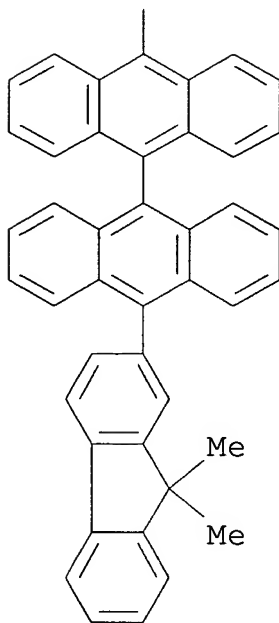
CN 9,9'-Bianthracene, 10-(9,9-dimethyl-9H-fluoren-2-yl)-10'-  
(9,9,9',9'-tetramethyl[2,2'-bi-9H-fluoren]-7-yl)-(9CI) (CA INDEX  
NAME)

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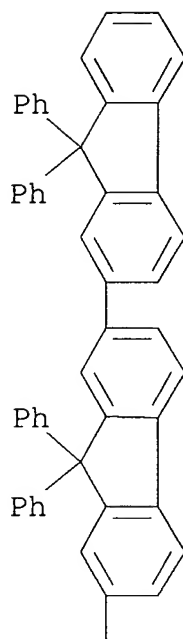


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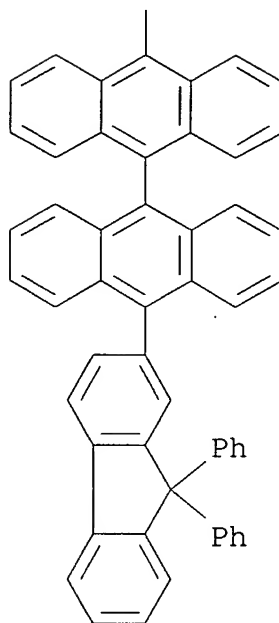


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        NAME)
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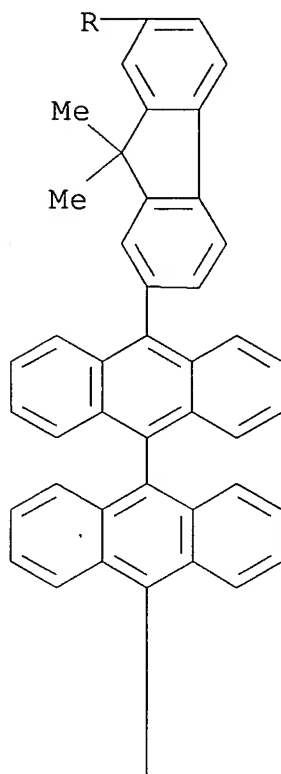


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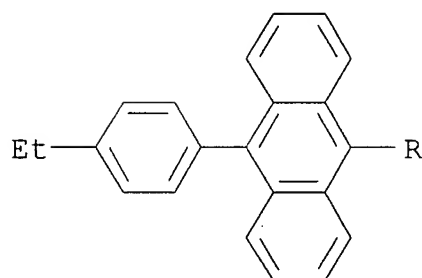
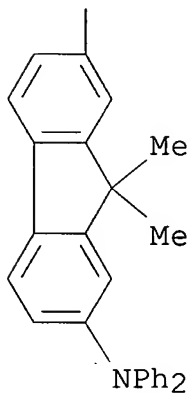


RN 400606-53-3 CAPLUS  
CN 9H-Fluoren-2-amine, 7-[10'-[7-[10-(4-ethylphenyl)-9-anthracenyl]-  
9,9-dimethyl-9H-fluoren-2-yl]][9,9'-bianthracen]-10-yl]-9,9-  
dimethyl-N,N-diphenyl- (9CI) (CA INDEX NAME)

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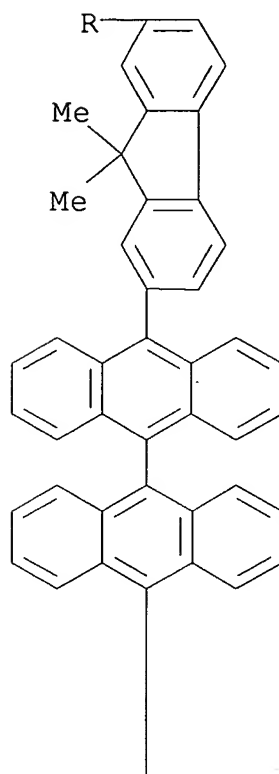


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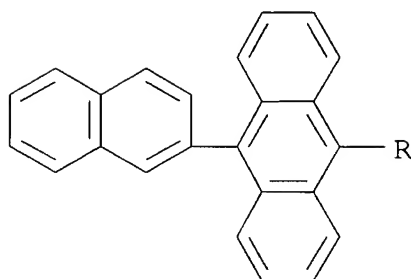
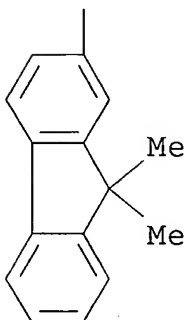


RN 400606-54-4 CAPLUS  
CN 9,9'-Bianthracene, 10-(9,9-dimethyl-9H-fluoren-2-yl)-10'-[9,9-dimethyl-7-[10-(2-naphthalenyl)-9-anthracenyl]-9H-fluoren-2-yl]-(9CI) (CA INDEX NAME)

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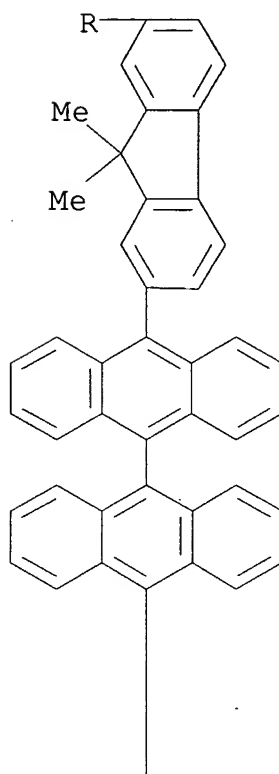


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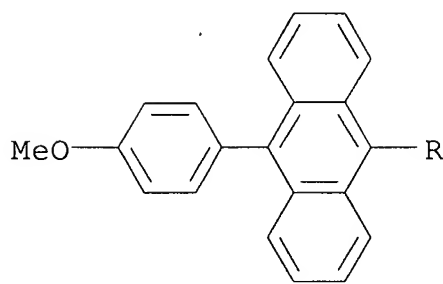
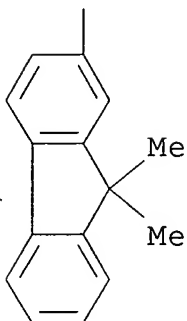
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CN 9,9'-Bianthracene, 10-(9,9-dimethyl-9H-fluoren-2-yl)-10'-[7-[10-(4-methoxyphenyl)-9-anthracenyl]-9,9-dimethyl-9H-fluoren-2-yl]- (9CI)  
(CA INDEX NAME)

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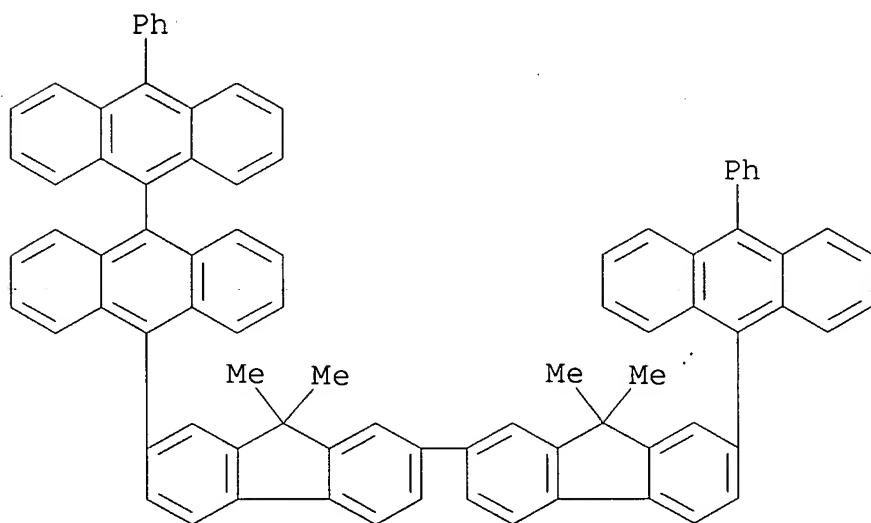


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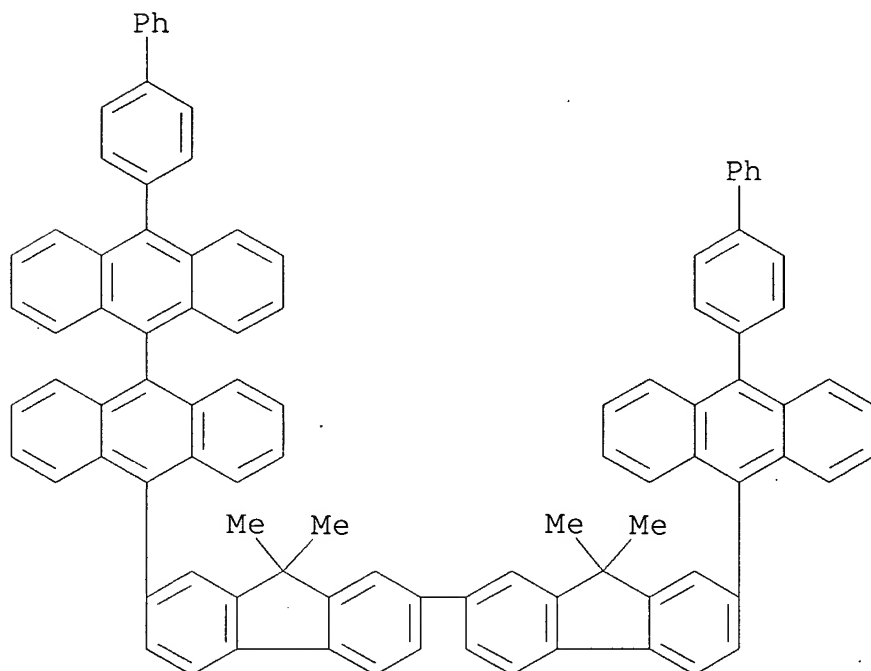
RN 400606-56-6 CAPLUS

CN 9,9'-Bianthracene, 10-phenyl-10'-(10-phenyl-9-anthracenyl)-[9,9',9',9'-tetramethyl-7'-(10-phenyl-9-anthracenyl)]-2,2'-bi-9H-fluorene]-(9CI) (CA INDEX NAME)



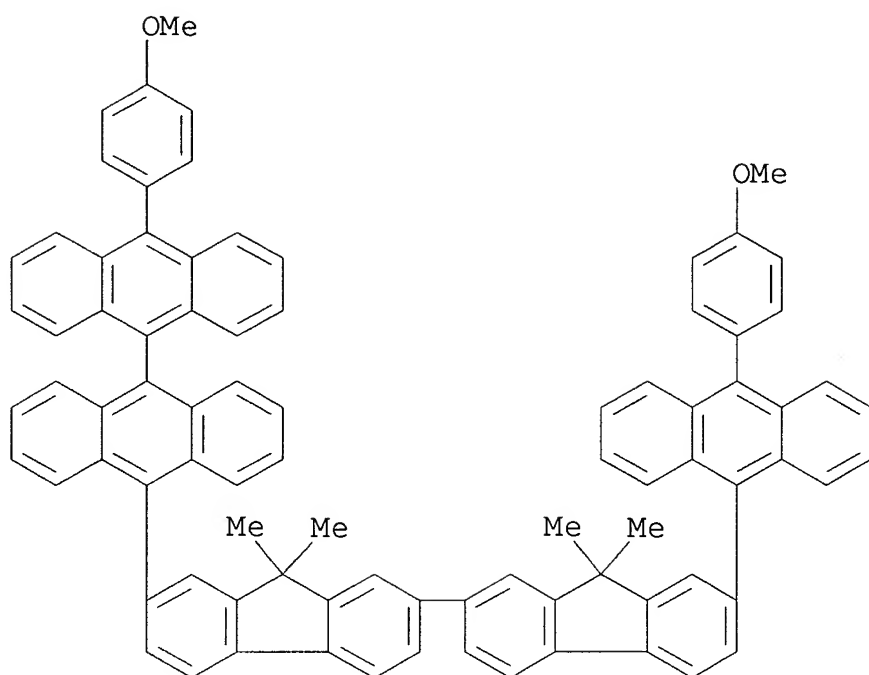
RN 400606-57-7 CAPLUS

CN 9,9'-Bianthracene, 10-[1,1'-biphenyl]-4-yl-10'-[7'-(10-[1,1'-biphenyl]-4-yl-9-anthracenyl)-9,9,9',9'-tetramethyl[2,2'-bi-9H-fluoren]-7-yl]- (9CI) (CA INDEX NAME)



RN 400606-58-8 CAPLUS

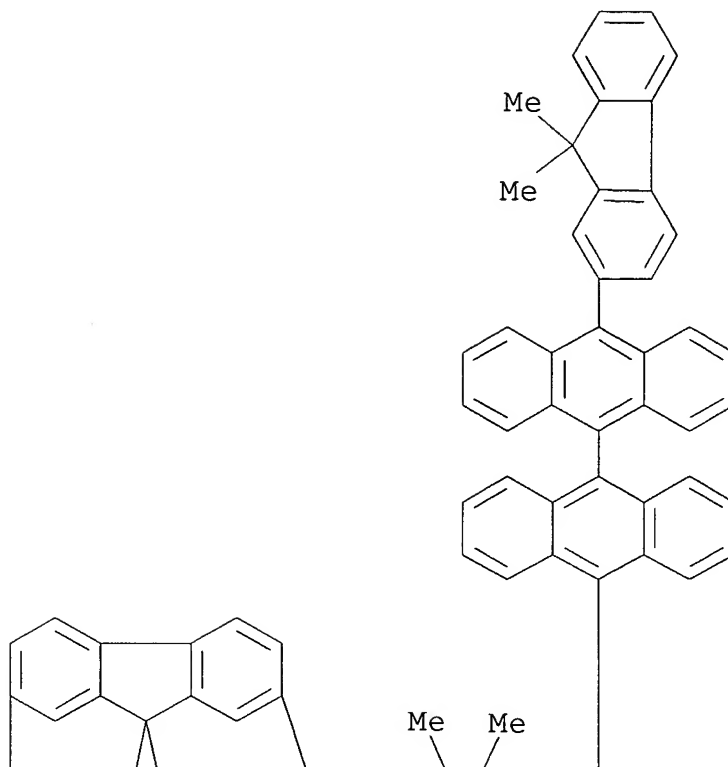
CN 9,9'-Bianthracene, 10-(4-methoxyphenyl)-10'-[7'-[10-(4-methoxyphenyl)-9-anthracenyl]-9,9,9',9'-tetramethyl[2,2'-bi-9H-fluoren]-7-yl]- (9CI) (CA INDEX NAME)



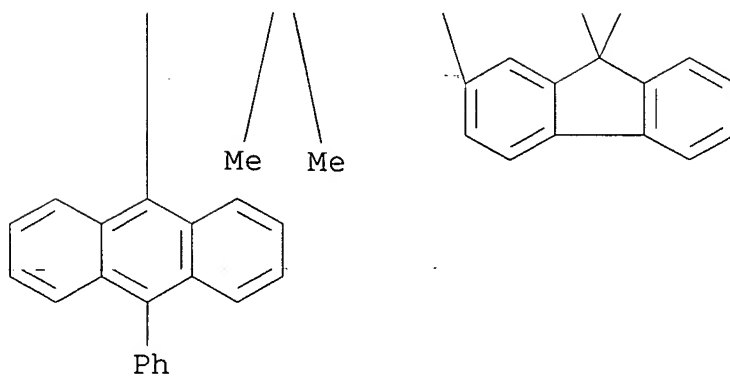
RN 400606-59-9 CAPLUS

CN 9,9'-Bianthrane, 10-(9,9-dimethyl-9H-fluoren-2-yl)-10'-  
[9,9,9',9'-tetramethyl-7'-(10-phenyl-9-anthracenyl)[2,2'-bi-9H-  
fluoren]-7-yl]- (9CI) (CA INDEX NAME)

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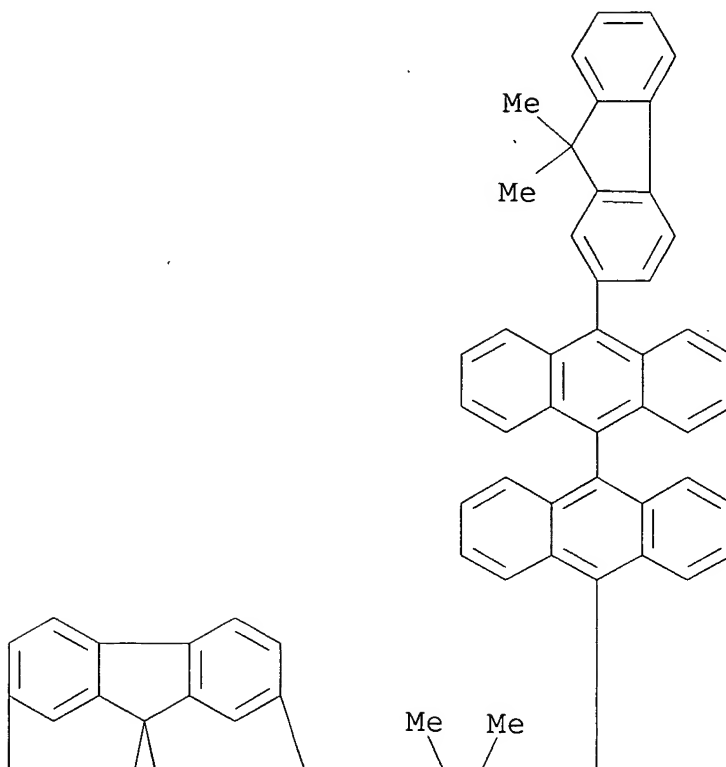
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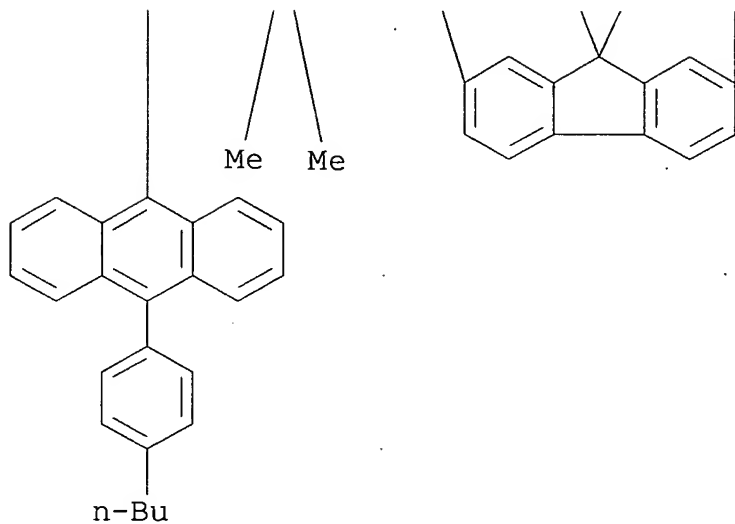
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CN 9,9'-Bianthracene, 10-[7'-[10-(4-butylphenyl)-9-anthracenyl]-  
9,9,9',9'-tetramethyl[2,2'-bi-9H-fluorene]-7-yl]-10'-(9,9-dimethyl-

9H-fluoren-2-yl)- (9CI) (CA INDEX NAME)

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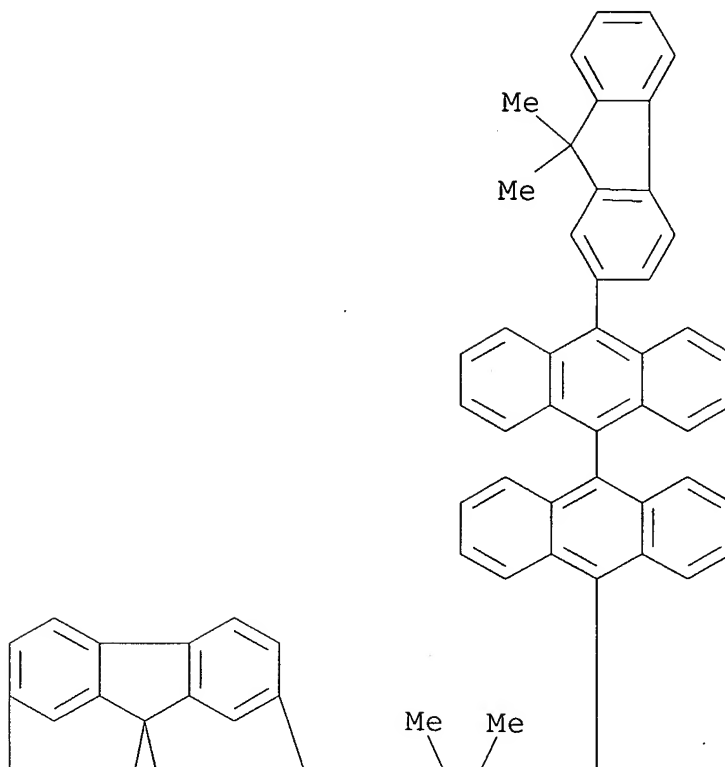


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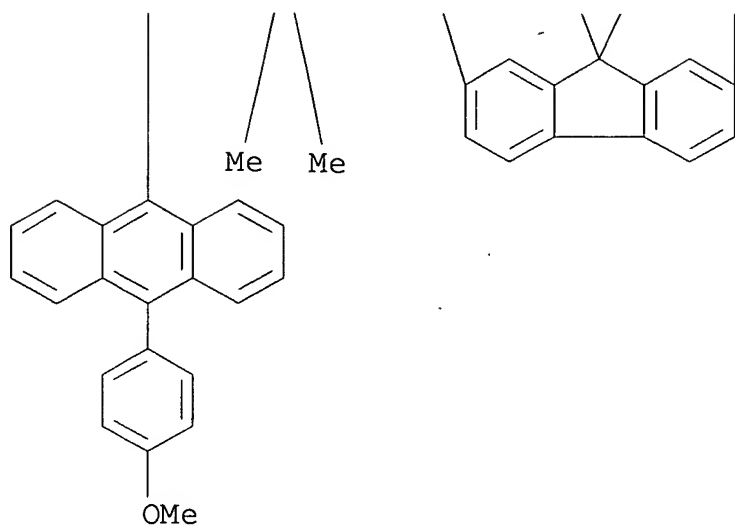


RN 400606-61-3 CAPLUS  
CN 9,9'-Bianthracene, 10-(9,9-dimethyl-9H-fluoren-2-yl)-10'-[7'-[10-(4-methoxyphenyl)-9-anthracenyl]-9,9,9',9'-tetramethyl[2,2'-bi-9H-fluoren]-7-yl]- (9CI) (CA INDEX NAME)

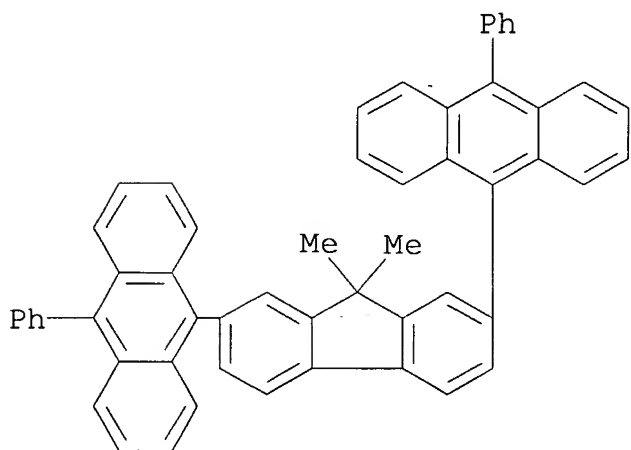
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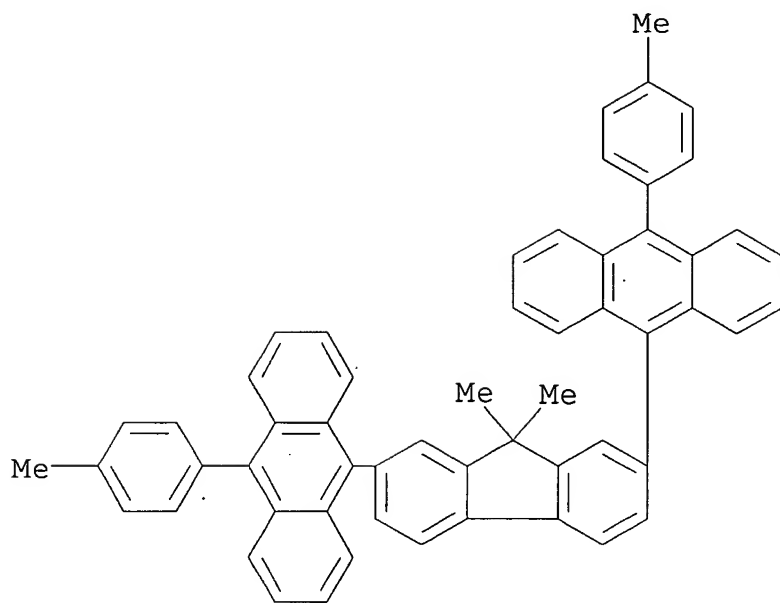


RN 400606-62-4 CAPLUS  
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 (9CI) (CA INDEX NAME)



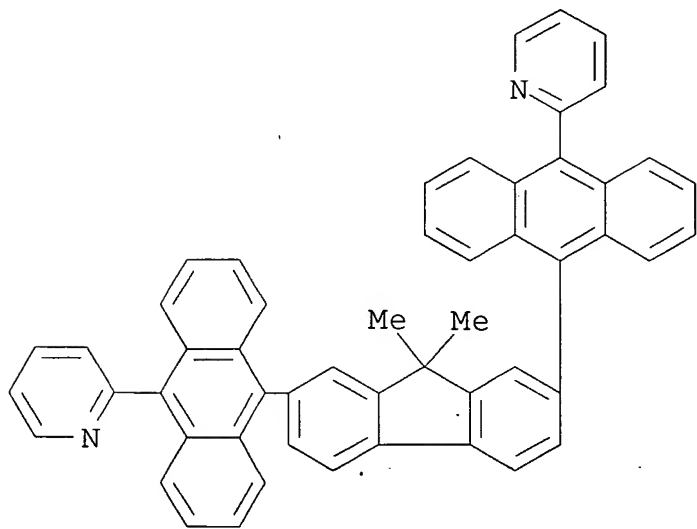
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 CN Anthracene, 9,9'-(9,9-dimethyl-9H-fluorene-2,7-diyl)bis[10-(4-  
 methylphenyl)- (9CI) (CA INDEX NAME)





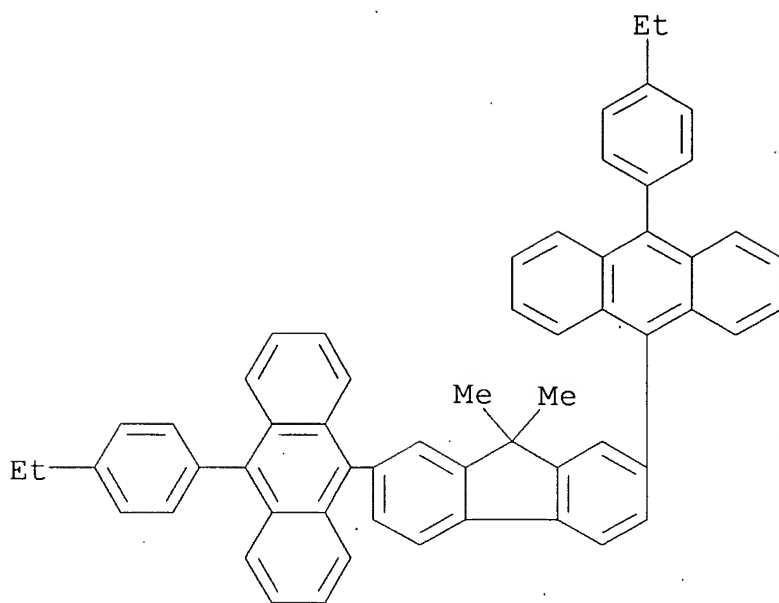
RN 400606-64-6 CAPLUS

CN Pyridine, 2,2'-[(9,9-dimethyl-9H-fluorene-2,7-diyl)di-10,9-anthracenediyl]bis- (9CI) (CA INDEX NAME)



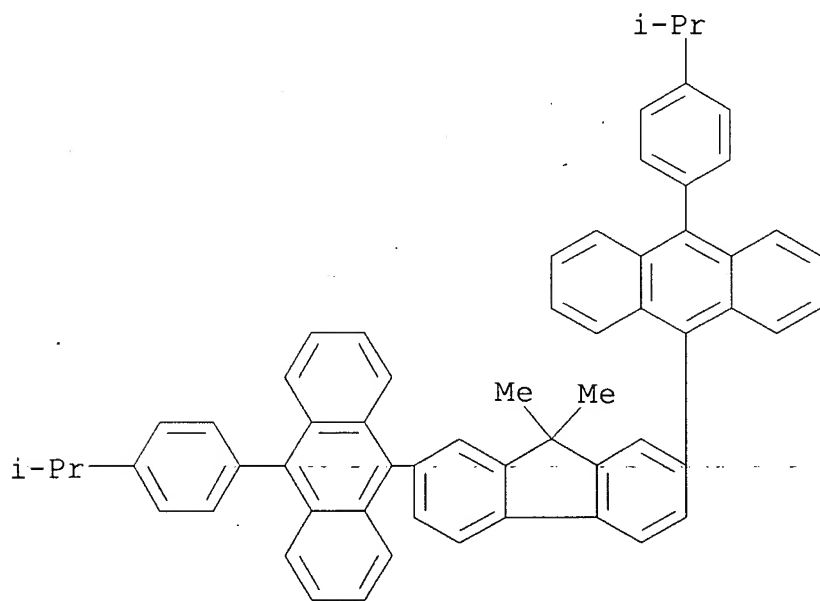
RN 400606-65-7 CAPLUS

CN Anthracene, 9,9'-(9,9-dimethyl-9H-fluorene-2,7-diyl)bis[10-(4-ethylphenyl)- (9CI) (CA INDEX NAME)



RN 400606-66-8 CAPLUS

CN Anthracene, 9,9'-(9,9-dimethyl-9H-fluorene-2,7-diyl)bis[10-[4-(1-methylethyl)phenyl]- (9CI) (CA INDEX NAME)

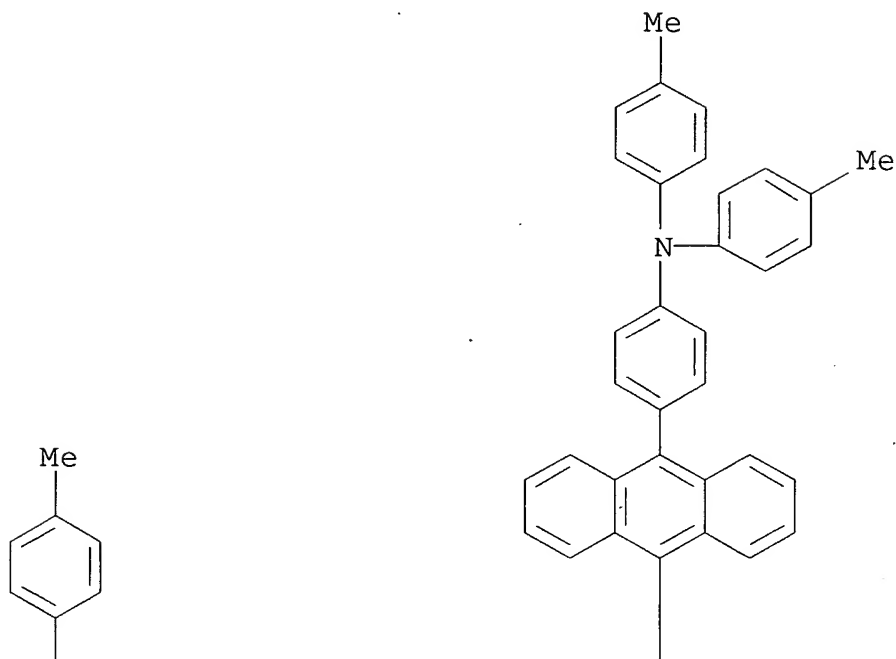


RN 400606-67-9 CAPLUS

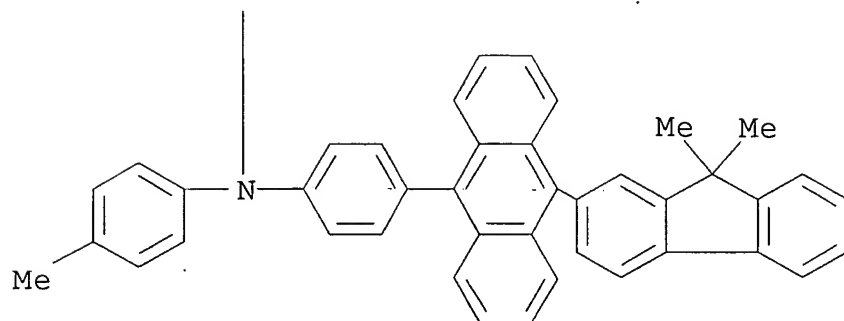
CN Benzenamine, 4,4'-[(9,9-dimethyl-9H-fluorene-2,7-diyl)di-10,9-

anthracenediyl]bis[N,N-bis(4-methylphenyl)- (9CI) (CA INDEX NAME)

PAGE 1-A

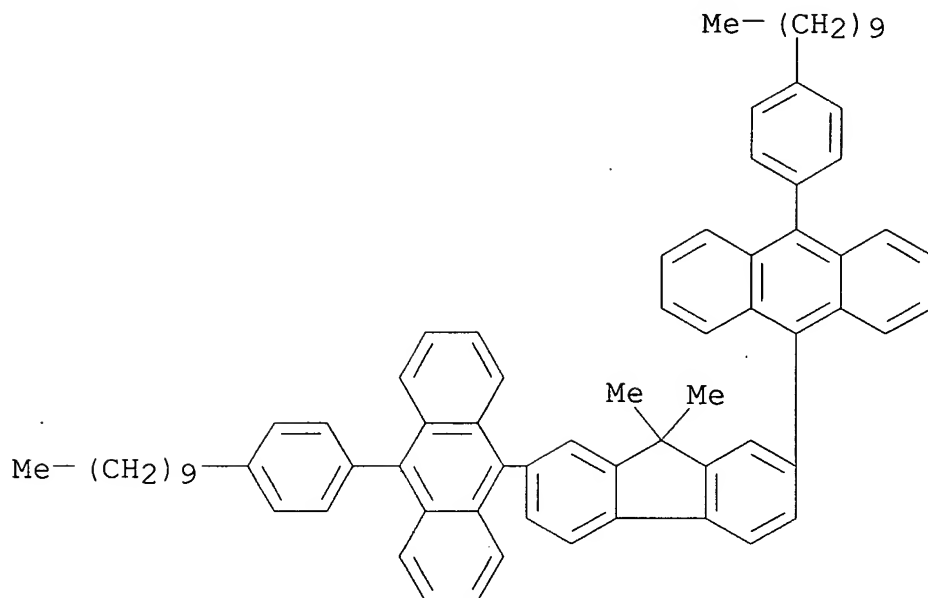


PAGE 2-A



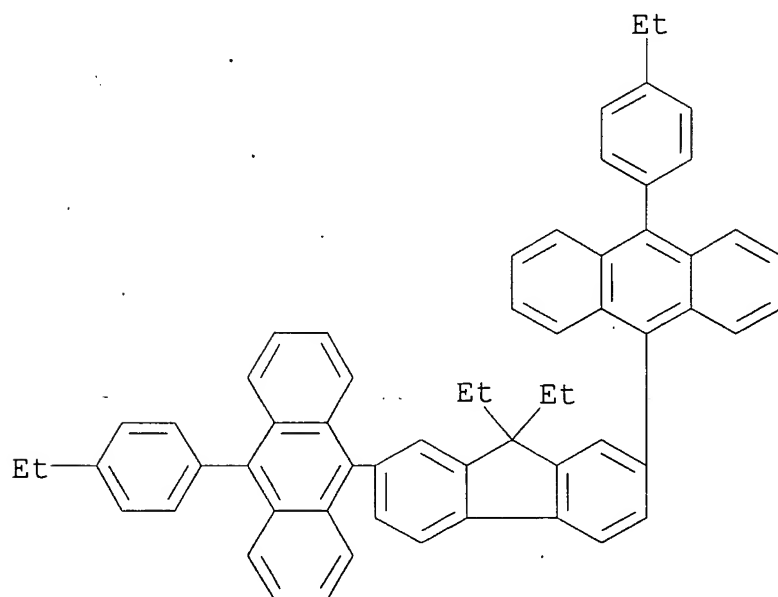
RN 400606-68-0 CAPLUS  
CN Anthracene, 9,9'-(9,9-dimethyl-9H-fluorene-2,7-diyl)bis[10-(4-

decylphenyl)- (9CI) (CA INDEX NAME)

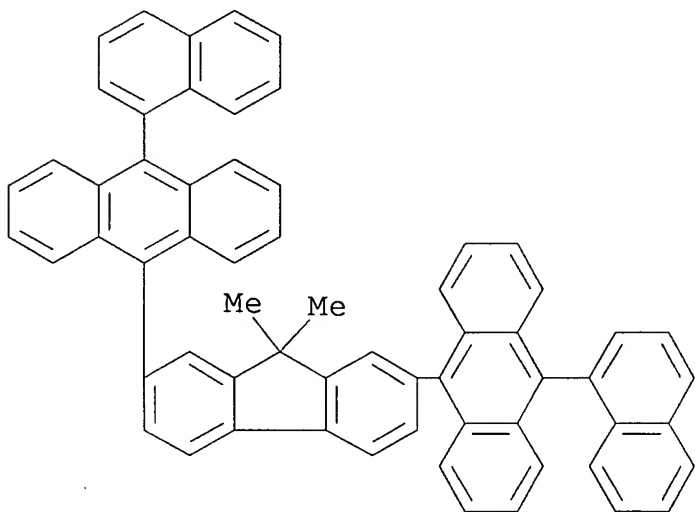


RN 400606-69-1 CAPLUS

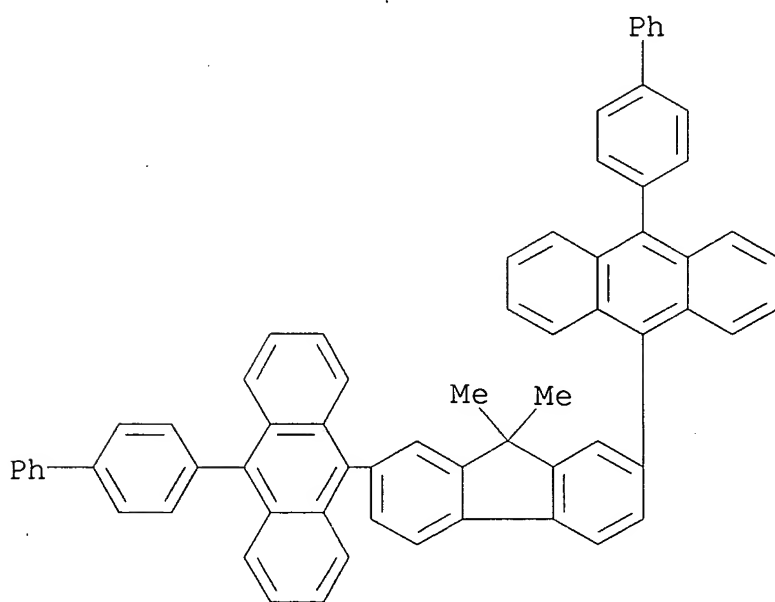
CN Anthracene, 9,9'-(9,9-diethyl-9H-fluorene-2,7-diyl)bis[10-(4-ethylphenyl)- (9CI) (CA INDEX NAME)]



RN 400606-70-4 CAPLUS  
CN Anthracene, 9,9'-(9,9-dimethyl-9H-fluorene-2,7-diyl)bis[10-(1-naphthalenyl)- (9CI) (CA INDEX NAME)

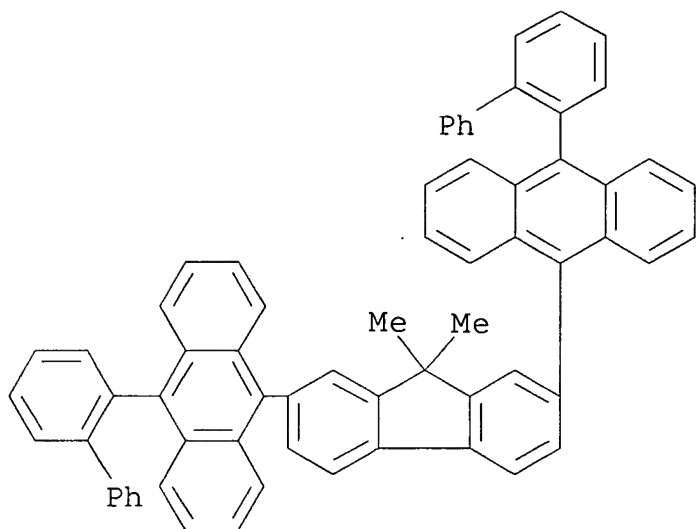


RN 400606-71-5 CAPLUS  
CN Anthracene, 9,9'-(9,9-dimethyl-9H-fluorene-2,7-diyl)bis[10-[1,1'-biphenyl]-4-yl- (9CI) (CA INDEX NAME)



RN 400606-72-6 CAPLUS

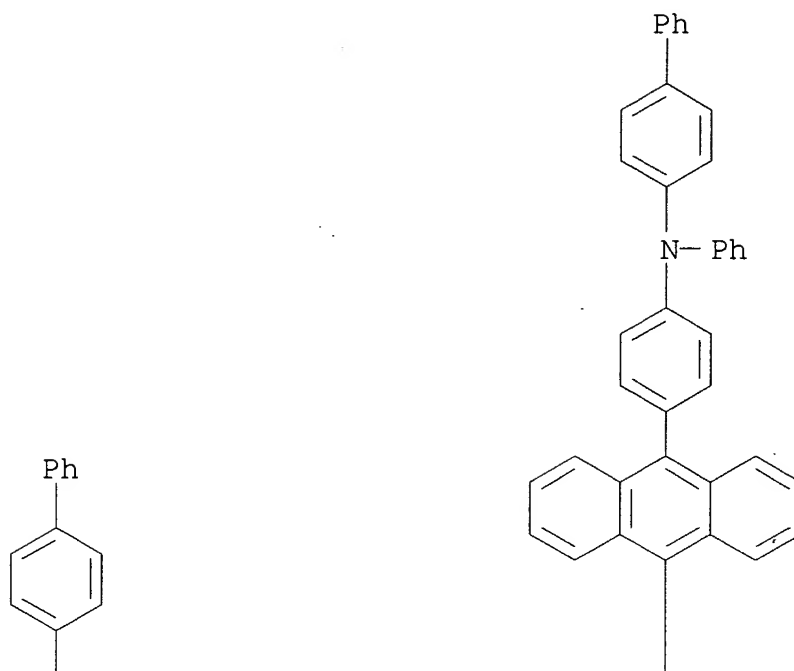
2 CN Anthracene, 9,9'-(9,9-dimethyl-9H-fluorene-2,7-diyl)bis[10-[1,1'-biphenyl]-2-yl- (9CI) (CA INDEX NAME)



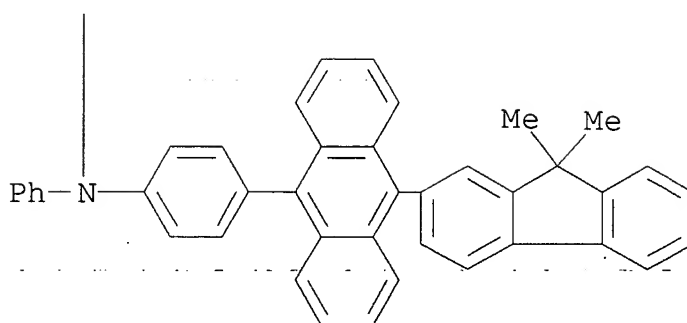
RN 400606-73-7 CAPLUS

CN [1,1'-Biphenyl]-4-amine, N,N'-[(9,9-dimethyl-9H-fluorene-2,7-diyl)bis(10,9-anthracenediyl-4,1-phenylene)]bis[N-phenyl- (9CI) (CA INDEX NAME)]

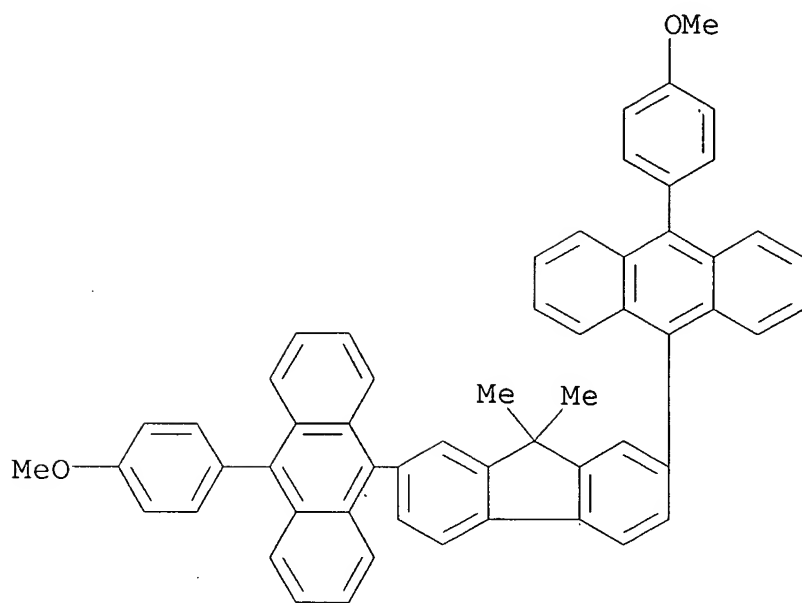
PAGE 1-A



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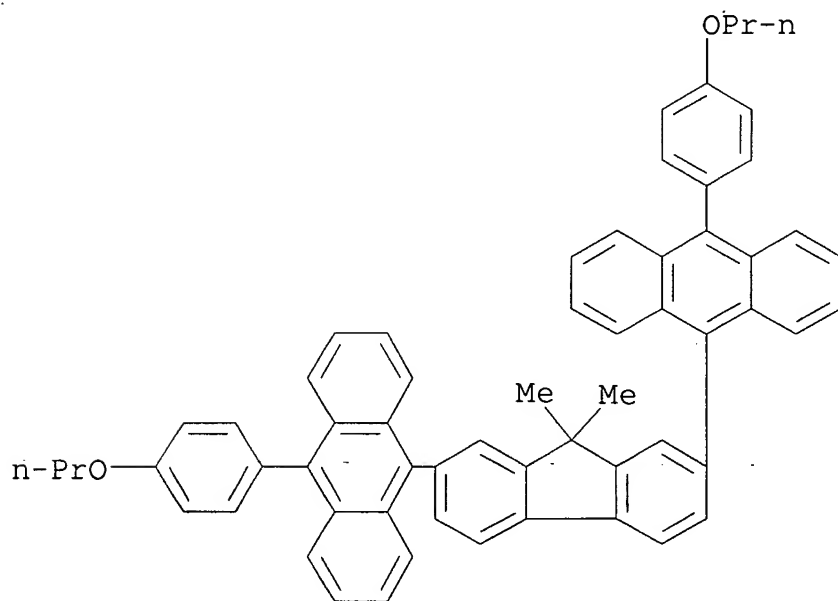


RN 400606-74-8 CAPLUS  
 CN Anthracene, 9,9'-(9,9-dimethyl-9H-fluorene-2,7-diyl)bis[10-(4-methoxyphenyl)]- (9CI) (CA INDEX NAME)



RN 400606-75-9 CAPLUS

CN Anthracene, 9,9'-(9,9-dimethyl-9H-fluorene-2,7-diyl)bis[10-(4-propoxyphenyl)- (9CI) (CA INDEX NAME)

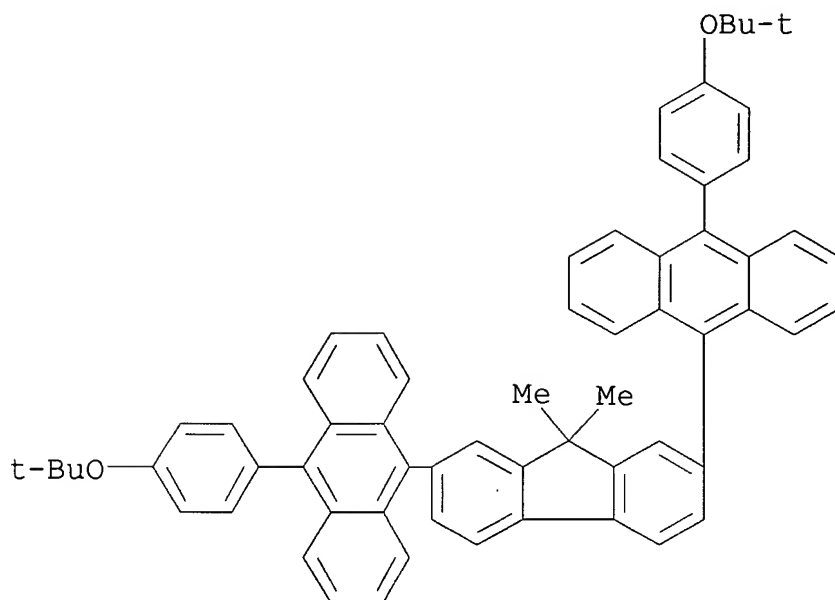


RN 400606-76-0 CAPLUS

CN Anthracene, 9,9'-(9,9-dimethyl-9H-fluorene-2,7-diyl)bis[10-[4-(1,1-

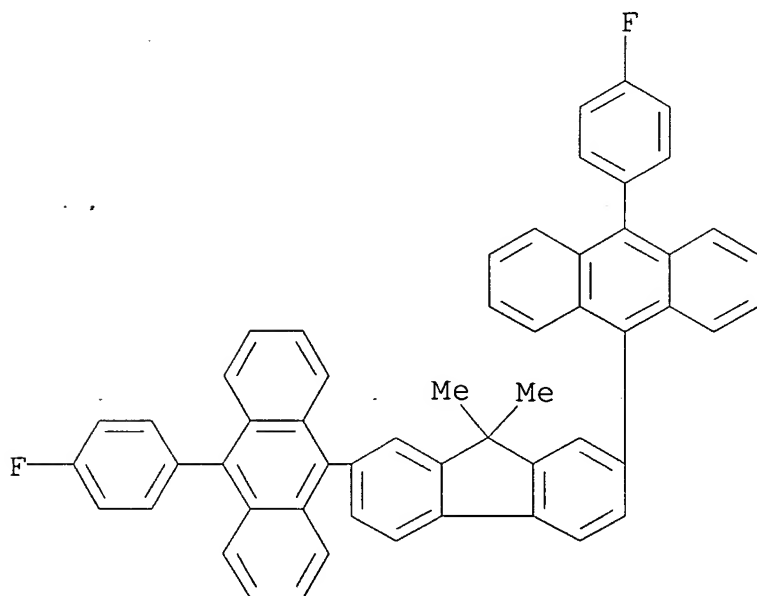


dimethylethoxy)phenyl]- (9CI) (CA INDEX NAME)

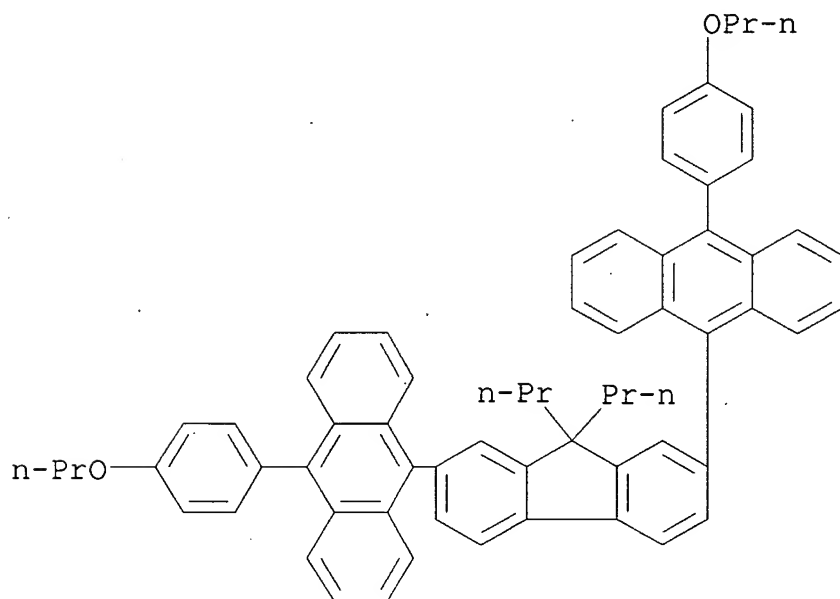


RN 400606-77-1 CAPLUS

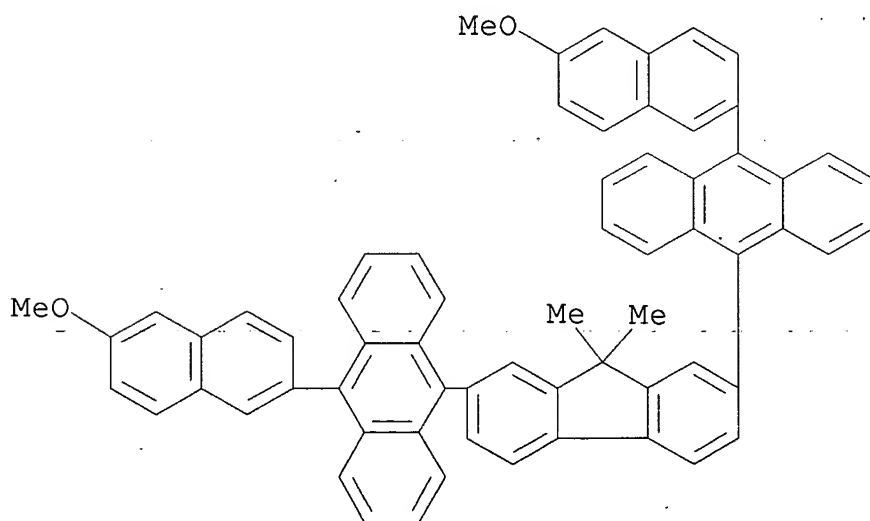
CN Anthracene, 9,9'-(9,9-dimethyl-9H-fluorene-2,7-diyl)bis[10-(4-fluorophenyl)- (9CI) (CA INDEX NAME)



RN 400606-78-2 CAPLUS  
CN Anthracene, 9,9'-(9,9-dipropyl-9H-fluorene-2,7-diyl)bis[10-(4-propoxyphenyl)- (9CI) (CA INDEX NAME)

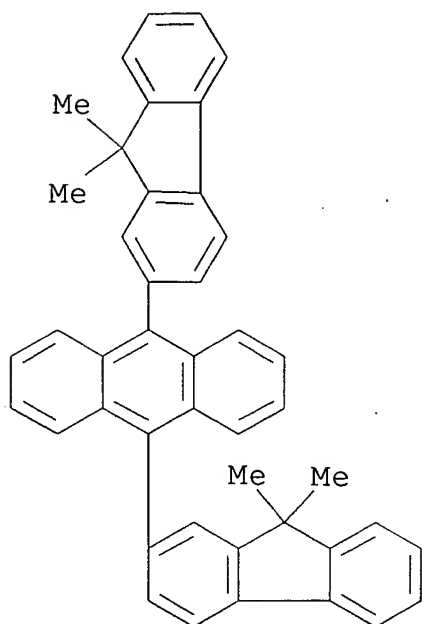


RN 400606-79-3 CAPLUS  
CN Anthracene, 9,9'-(9,9-dimethyl-9H-fluorene-2,7-diyl)bis[10-(6-methoxy-2-naphthalenyl)- (9CI) (CA INDEX NAME)



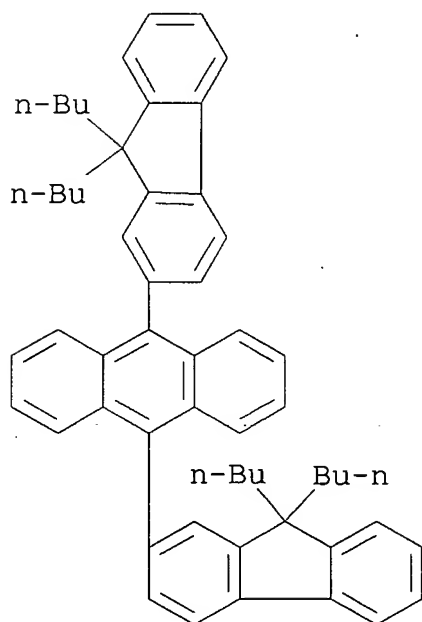
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RN 400606-81-7 CAPLUS  
CN Anthracene, 9,10-bis(9,9-dimethyl-9H-fluoren-2-yl)- (9CI) (CA  
INDEX NAME)



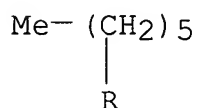
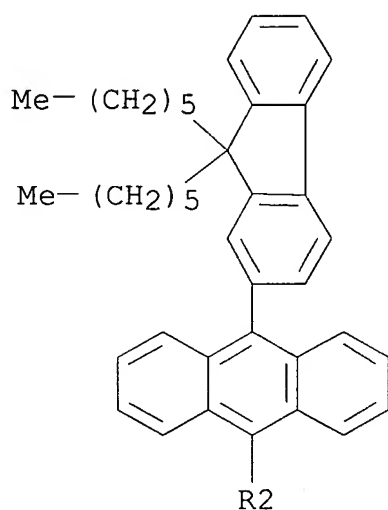
RN 400606-82-8 CAPLUS

CN Anthracene, 9,10-bis(9,9-dibutyl-9H-fluoren-2-yl)- (9CI) (CA  
INDEX NAME)

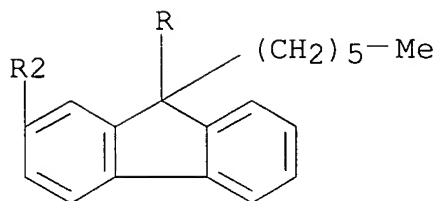


RN 400606-83-9 CAPLUS  
 CN Anthracene, 9,10-bis(9,9-dihexyl-9H-fluoren-2-yl)- (9CI) (CA  
 INDEX NAME)

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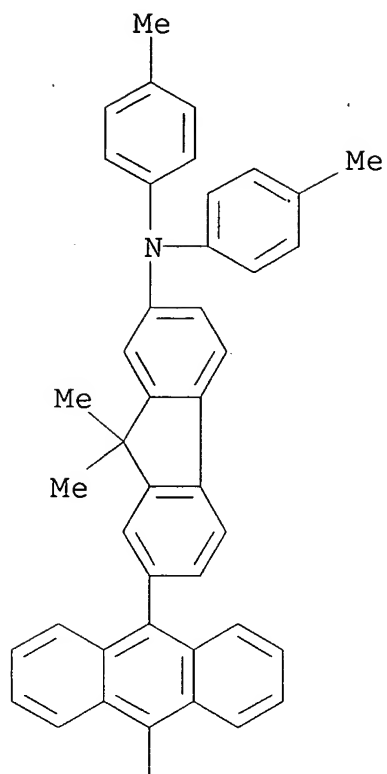


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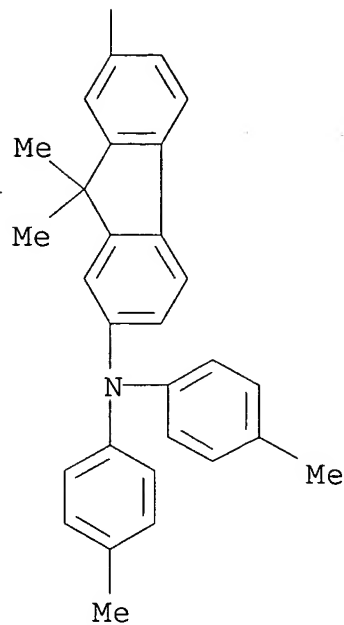


RN 400606-84-0 CAPLUS  
 CN 9H-Fluoren-2-amine, 7,7'-(9,10-anthracenediyl)bis[9,9-dimethyl-N,N-  
 bis(4-methylphenyl)- (9CI) (CA INDEX NAME)

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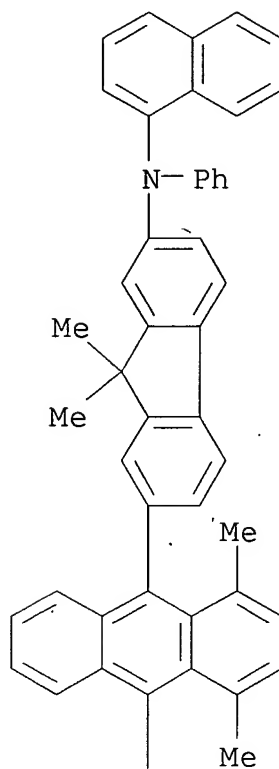
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RN 400606-85-1 CAPLUS

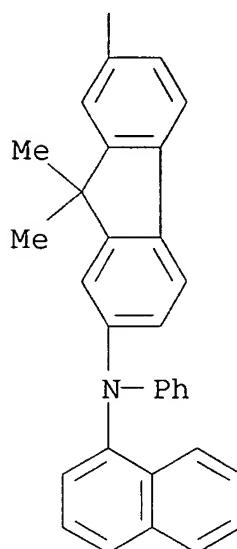
CN 9H-Fluoren-2-amine, 7,7'-(1,4-dimethyl-9,10-anthracenediyl)bis[9,9-dimethyl-N-1-naphthalenyl-N-phenyl- (9CI) (CA INDEX NAME)

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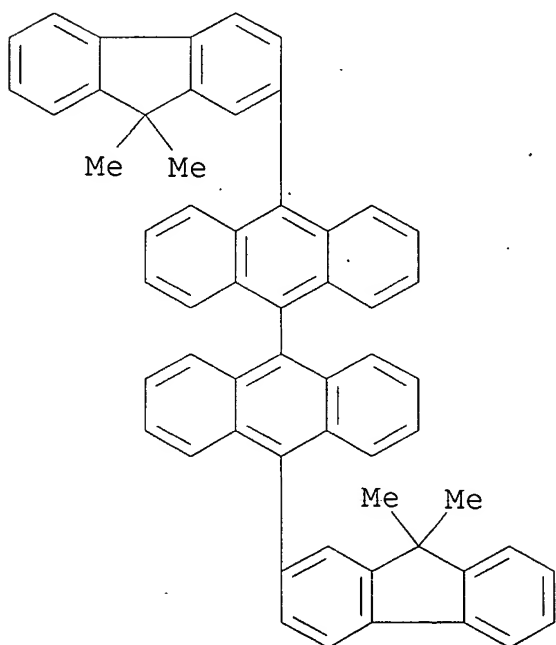




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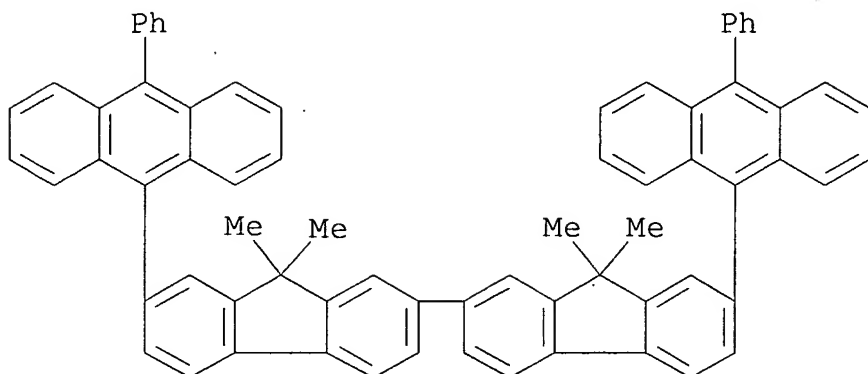
RN 400606-86-2 CAPLUS

CN 9,9'-Bianthracene, 10,10'-bis(9,9-dimethyl-9H-fluoren-2-yl)- (9CI)  
(CA INDEX NAME)

RN 400606-87-3 CAPLUS

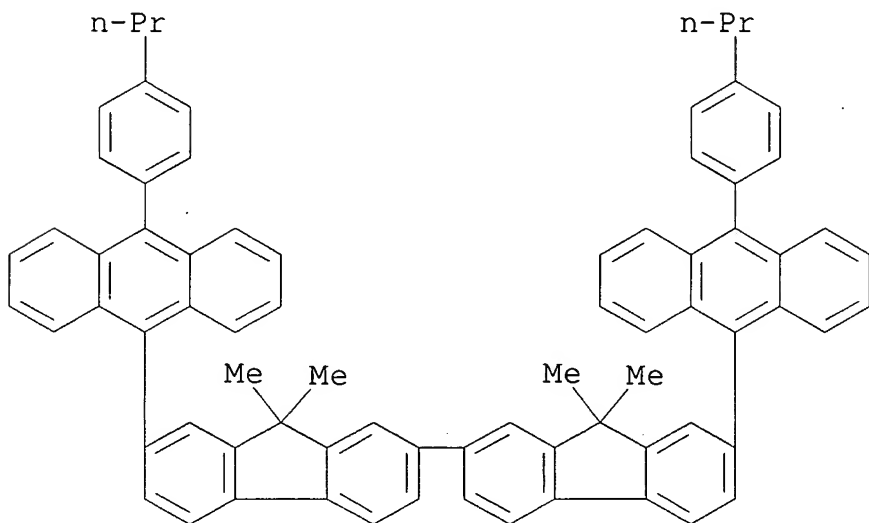
CN Anthracene, 9,9'-(9,9,9',9'-tetramethyl[2,2'-bi-9H-fluorene]-7,7'-diyl)-

diyl)bis[10-phenyl- (9CI) (CA INDEX NAME)



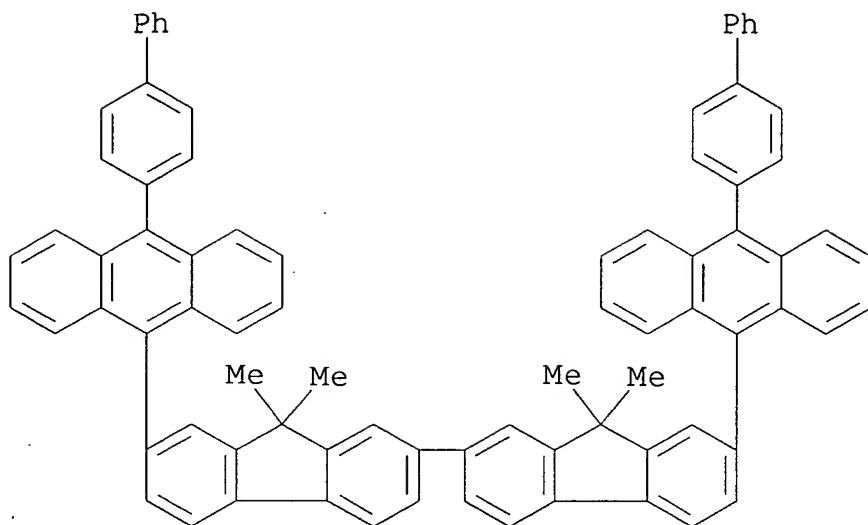
RN 400606-88-4 CAPLUS

CN Anthracene, 9,9'-(9,9,9',9'-tetramethyl[2,2'-bi-9H-fluorene]-7,7'-diyl)bis[10-(4-propylphenyl)- (9CI) (CA INDEX NAME)



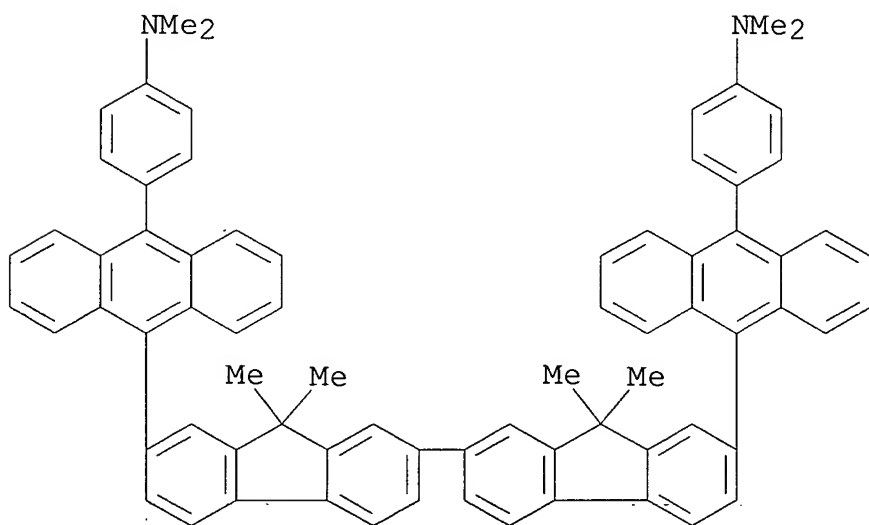
RN 400606-89-5 CAPLUS

CN Anthracene, 9,9'-(9,9,9',9'-tetramethyl[2,2'-bi-9H-fluorene]-7,7'-diyl)bis[10-[1,1'-biphenyl]-4-yl- (9CI) (CA INDEX NAME)



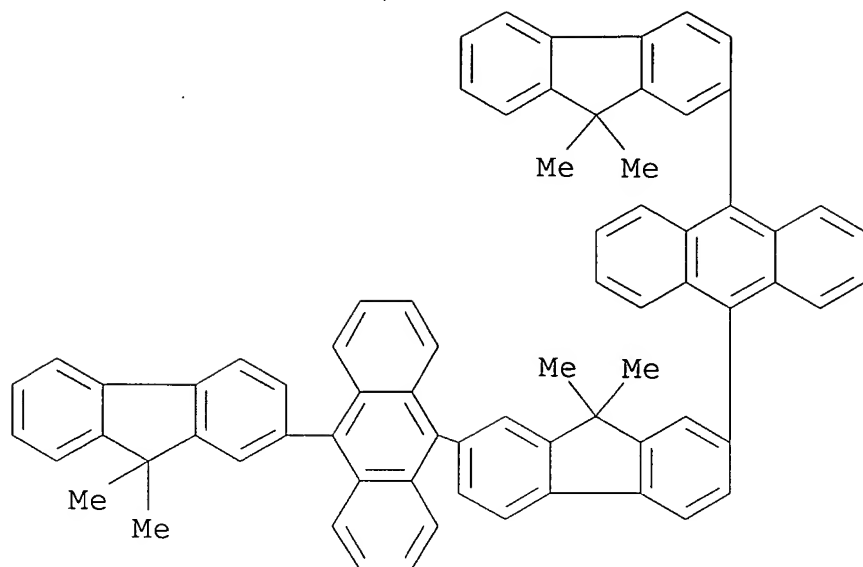
RN 400606-90-8 CAPLUS

CN Benzenamine, 4,4'-[(9,9,9',9'-tetramethyl[2,2'-bi-9H-fluorene]-7,7'-diyl)di-10,9-anthracenediyl]bis[N,N-dimethyl- (9CI) (CA INDEX NAME)



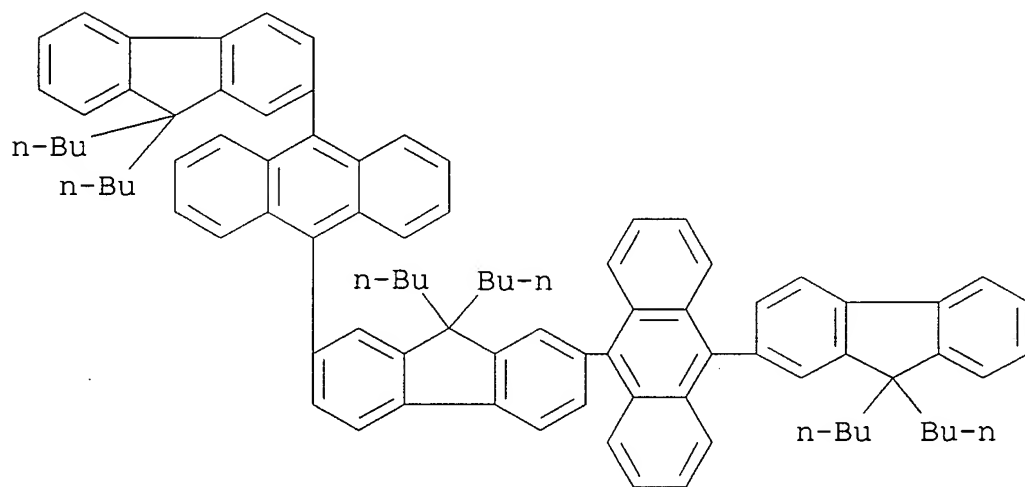
RN 400606-91-9 CAPLUS

CN Anthracene, 9,9'-(9,9-dimethyl-9H-fluorene-2,7-diyl)bis[10-(9,9-dimethyl-9H-fluorene-2-yl)- (9CI) (CA INDEX NAME)



RN 400606-92-0 CAPLUS

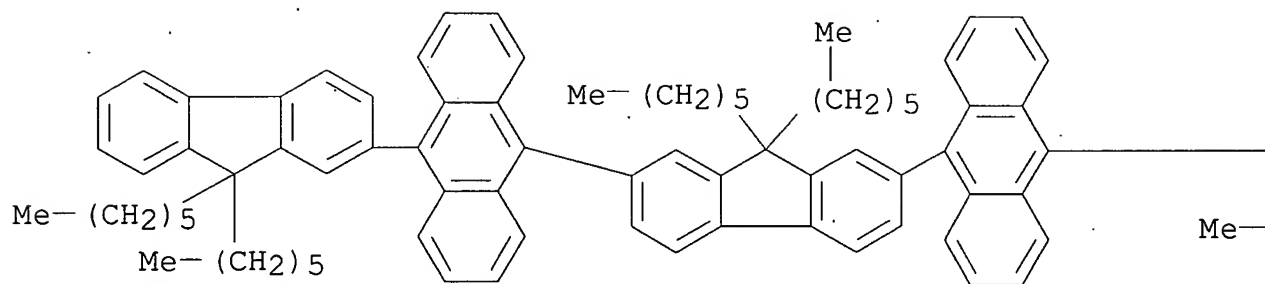
CN Anthracene, 9,9'-(9,9-dibutyl-9H-fluorene-2,7-diyl)bis[10-(9,9-dibutyl-9H-fluoren-2-yl)- (9CI) (CA INDEX NAME)



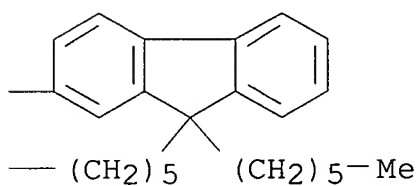
RN 400606-93-1 CAPLUS

CN Anthracene, 9,9'-(9,9-dihexyl-9H-fluorene-2,7-diyl)bis[10-(9,9-dihexyl-9H-fluoren-2-yl)- (9CI) (CA INDEX NAME)

PAGE 1-A

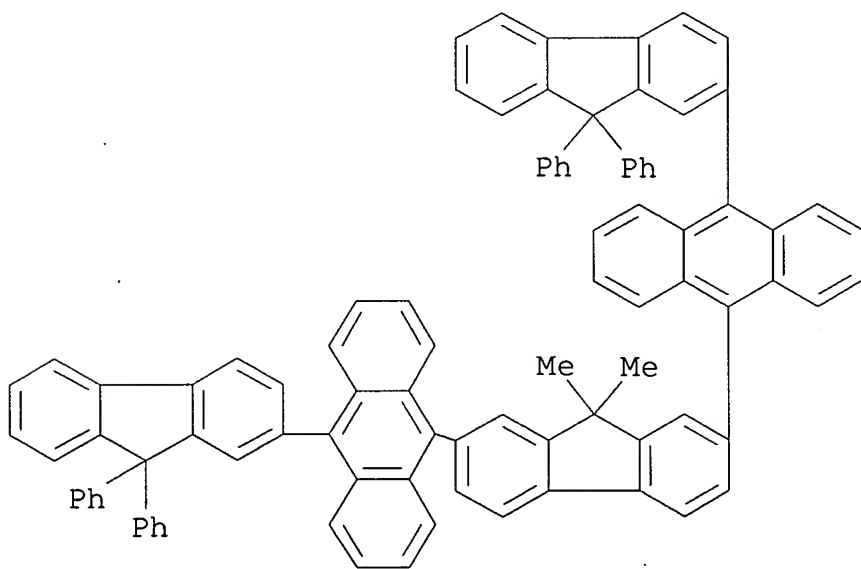


PAGE 1-B

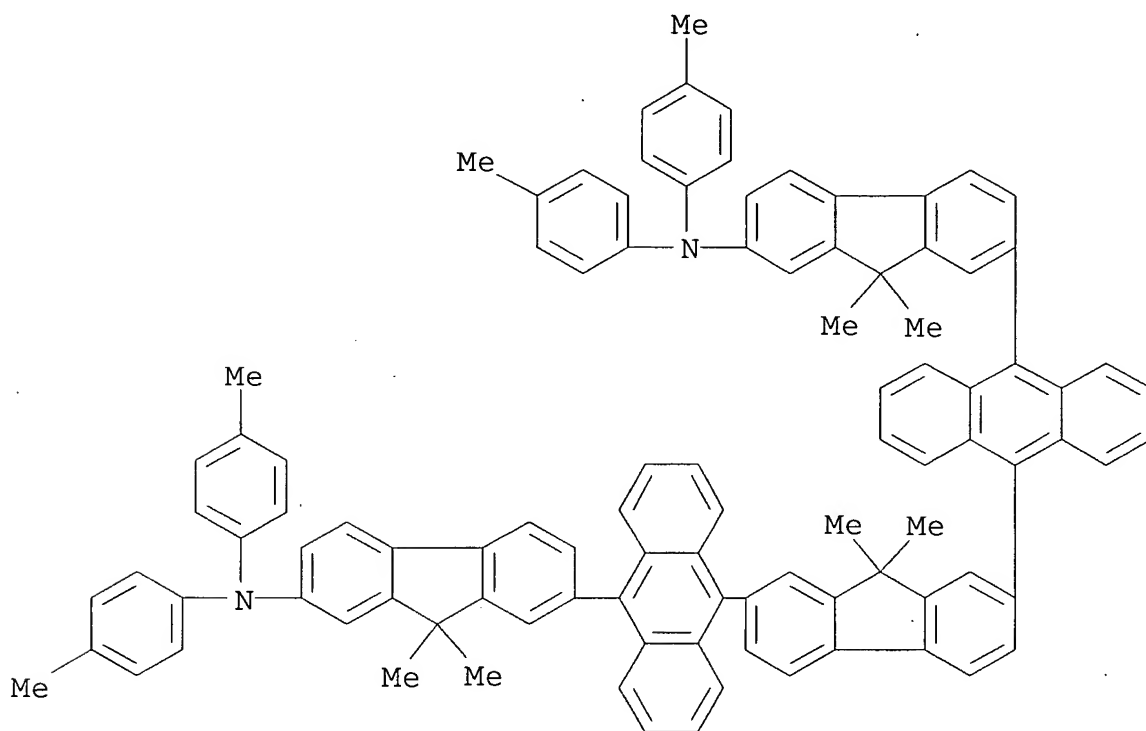


RN 400606-94-2 CAPLUS

CN Anthracene, 9,9'-(9,9-dimethyl-9H-fluorene-2,7-diyl)bis[10-(9,9-diphenyl-9H-fluorene-2-yl)-(9CI) (CA INDEX NAME)

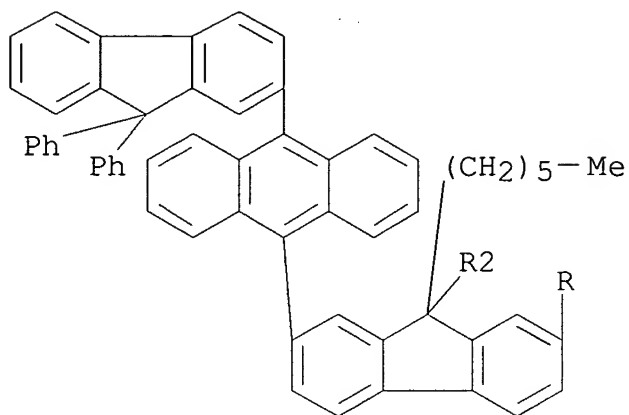


RN 400606-95-3 CAPLUS  
CN 9H-Fluoren-2-amine, 7,7'-[(9,9-dimethyl-9H-fluorene-2,7-diyl)di-  
10,9-anthracenediyl]bis[9,9-dimethyl-N,N-bis(4-methylphenyl)-  
(9CI) (CA INDEX NAME)

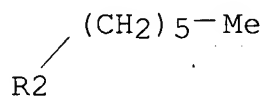
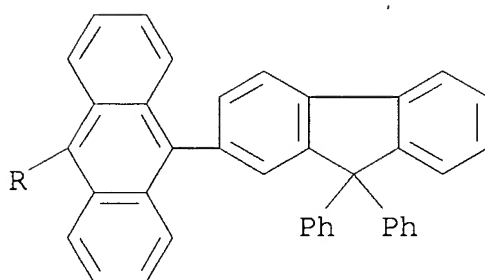


RN 400606-96-4 CAPLUS  
CN Anthracene, 9,9'-(9,9-dihexyl-9H-fluorene-2,7-diyl)bis[10-(9,9-  
diphenyl-9H-fluoren-2-yl)- (9CI) (CA INDEX NAME)

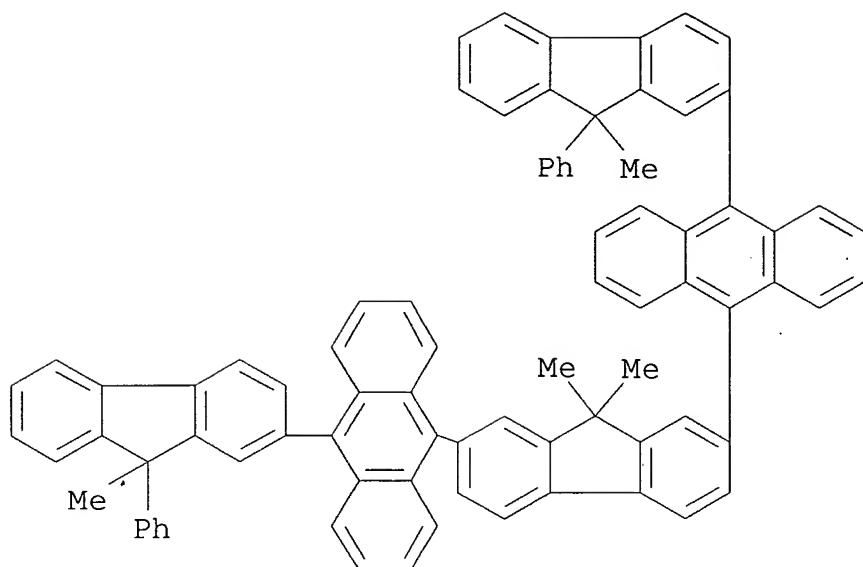
PAGE 1-A



PAGE 2-A

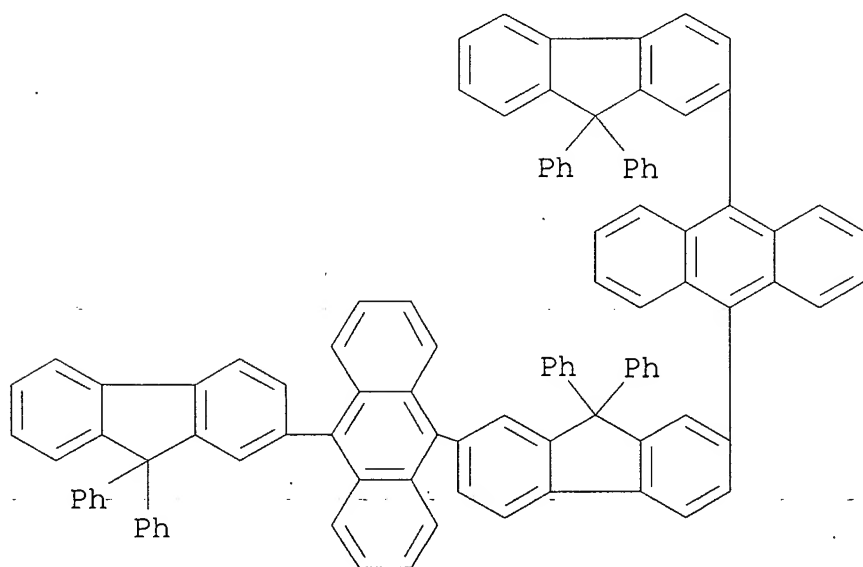


RN 400606-97-5 CAPLUS  
 CN Anthracene, 9,9'-(9,9-dimethyl-9H-fluorene-2,7-diyl)bis[10-(9-methyl-9-phenyl-9H-fluoren-2-yl)]- (9CI) (CA INDEX NAME)



RN 400606-98-6 CAPLUS

CN Anthracene, 9,9'-(9,9-diphenyl-9H-fluorene-2,7-diyl)bis[10-(9,9-diphenyl-9H-fluorene-2-yl)-(9CI) (CA INDEX NAME)



IT 523-27-3 23673-92-9 23674-20-6  
121848-75-7 144981-86-2 144981-88-4  
145005-98-7 158902-11-5 278176-05-9  
333432-28-3 334658-75-2 371193-08-7

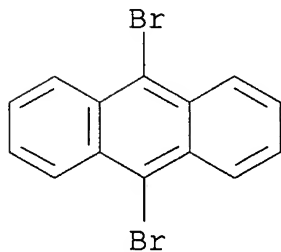


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400607-08-1 400607-09-2 400607-10-5  
400607-11-6 400607-12-7 400607-13-8  
400607-14-9 400607-15-0 400607-16-1  
400607-17-2 400607-18-3 400607-19-4  
400607-20-7 400607-21-8 400607-22-9  
400607-23-0 400607-24-1 400607-25-2  
400607-26-3 400607-27-4 400607-28-5  
400607-29-6 400607-30-9 400607-31-0  
400607-32-1 400607-33-2 400607-34-3  
400607-35-4 400607-36-5 400607-37-6  
400607-38-7 400607-39-8 400607-40-1  
400607-41-2 400607-42-3 400607-43-4  
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400607-59-2 400607-60-5 400607-61-6  
400607-62-7 400607-63-8 400607-64-9  
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400607-71-8 400607-72-9 400607-73-0  
400607-74-1 400607-75-2 400607-76-3  
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400607-80-9 400607-81-0

(preparation of hydrocarbon compound for organic electroluminescent devices)

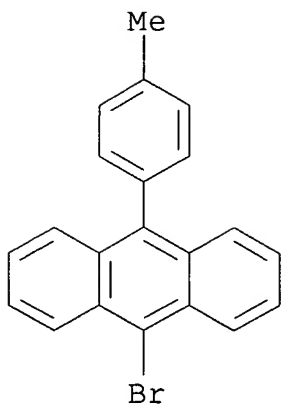
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CN Anthracene, 9,10-dibromo- (6CI, 8CI, 9CI) (CA INDEX NAME)

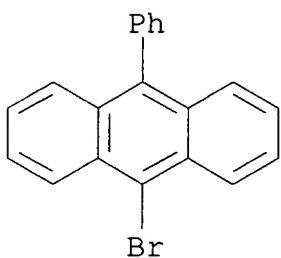


RN 23673-92-9 CAPLUS

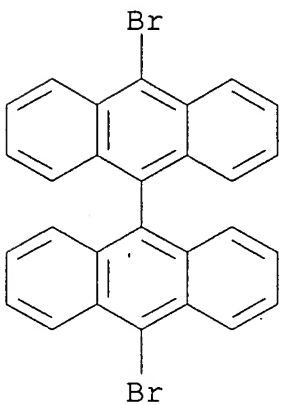
CN Anthracene, 9-bromo-10-(4-methylphenyl)- (9CI) (CA INDEX NAME)



RN 23674-20-6 CAPLUS  
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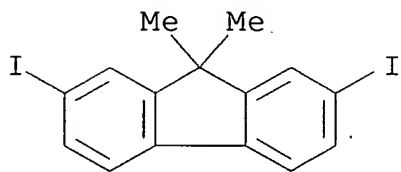


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CN 9,9'-Bianthracene, 10,10'-dibromo- (9CI) (CA INDEX NAME)



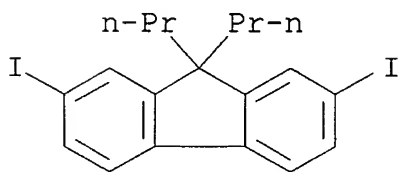
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· CN · 9H-Fluorene, 2,7-diiodo-9,9-dimethyl- (9CI) (CA INDEX NAME)



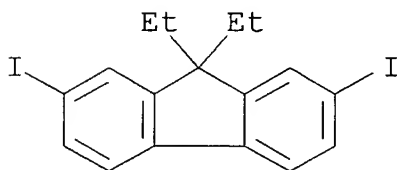
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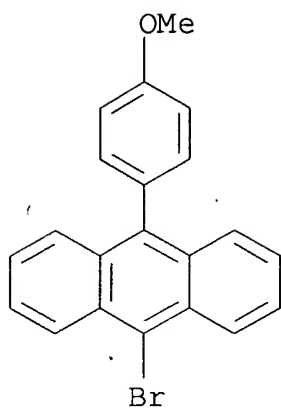
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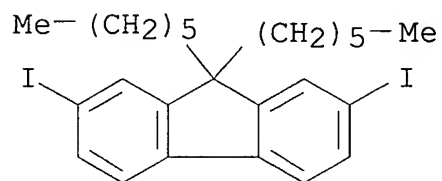
RN 158902-11-5 CAPLUS

CN Anthracene, 9-bromo-10-(4-methoxyphenyl)- (9CI) (CA INDEX NAME)



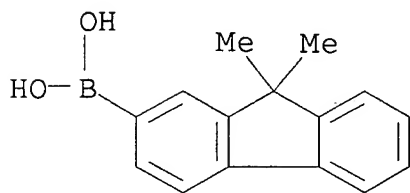
RN 278176-05-9 CAPLUS

CN 9H-Fluorene, 9,9-dihexyl-2,7-diiodo- (9CI) (CA INDEX NAME)



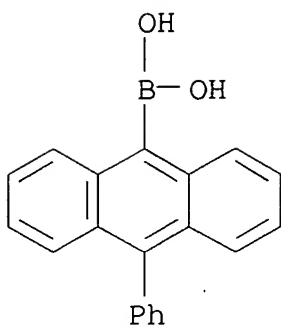
RN 333432-28-3 CAPLUS

CN Boronic acid, (9,9-dimethyl-9H-fluoren-2-yl)- (9CI) (CA INDEX NAME)



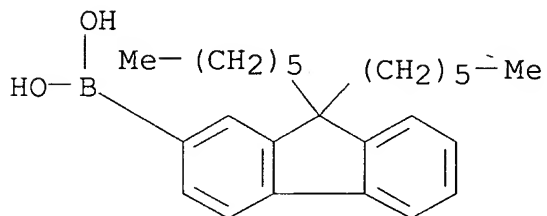
RN 334658-75-2 CAPLUS

CN Boronic acid, (10-phenyl-9-anthracenyl)- (9CI) (CA INDEX NAME)



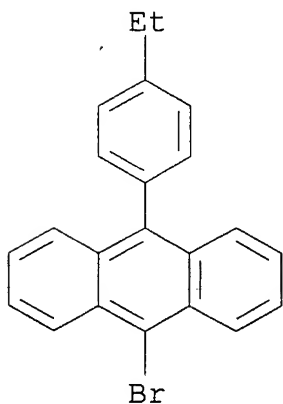
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CN Boronic acid, (9,9-dihexyl-9H-fluorene-2-yl)- (9CI) (CA INDEX NAME)



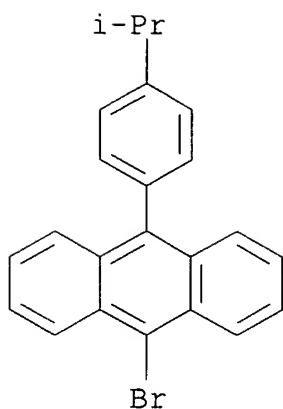
RN 400606-99-7 CAPLUS

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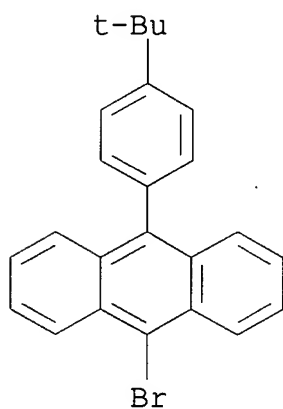


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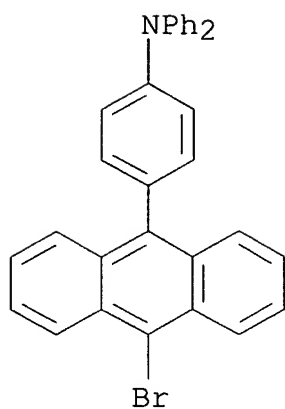
CN Anthracene, 9-bromo-10-[4-(1-methylethyl)phenyl]- (9CI) (CA INDEX NAME)



RN 400607-01-4 CAPLUS  
CN Anthracene, 9-bromo-10-[4-(1,1-dimethylethyl)phenyl]- (9CI) (CA  
INDEX NAME)

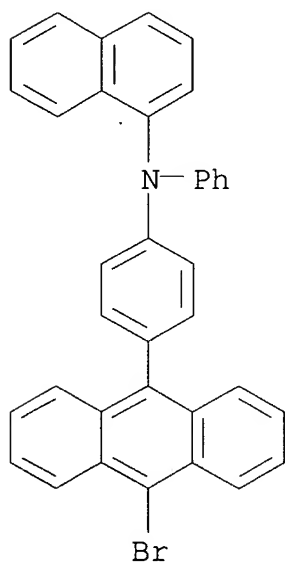


RN 400607-02-5 CAPLUS  
CN Benzenamine, 4-(10-bromo-9-anthracenyl)-N,N-diphenyl- (9CI) (CA  
INDEX NAME)



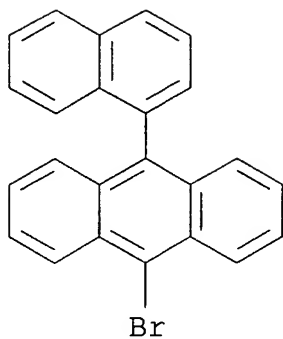
RN 400607-03-6 CAPLUS

CN 1-Naphthalenamine, N-[4-(10-bromo-9-anthracenyl)phenyl]-N-phenyl-  
(9CI) (CA INDEX NAME)

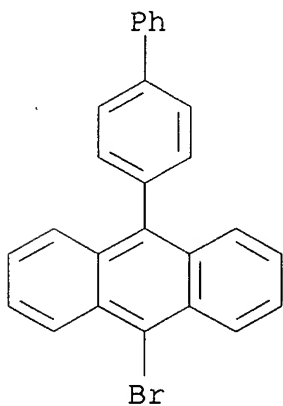


RN 400607-04-7 CAPLUS

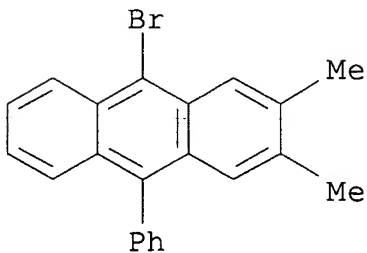
CN Anthracene, 9-bromo-10-(1-naphthalenyl)- (9CI) (CA INDEX NAME)



RN 400607-05-8 CAPLUS  
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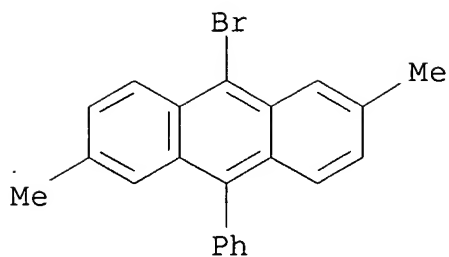


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CN Anthracene, 9-bromo-2,3-dimethyl-10-phenyl- (9CI) (CA INDEX NAME)



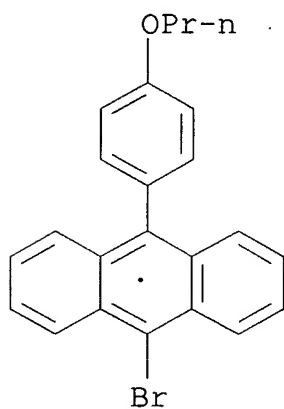
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CN Anthracene, 9-bromo-2,6-dimethyl-10-phenyl- (9CI) (CA INDEX NAME)





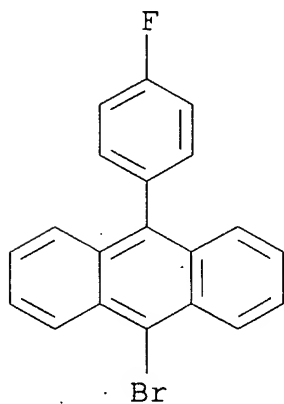
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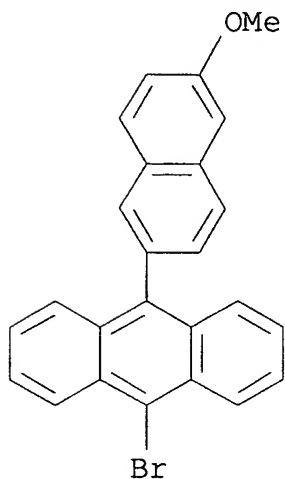


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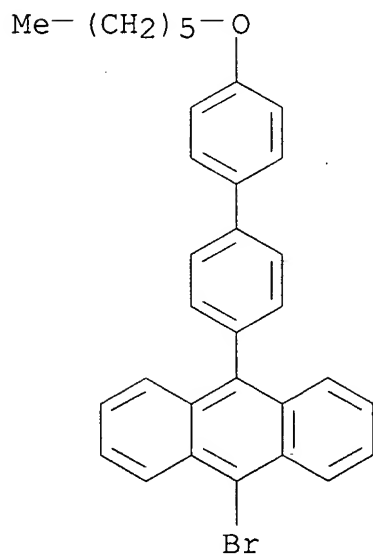
CN Anthracene, 9-bromo-10-(4-fluorophenyl)- (9CI) (CA INDEX NAME)



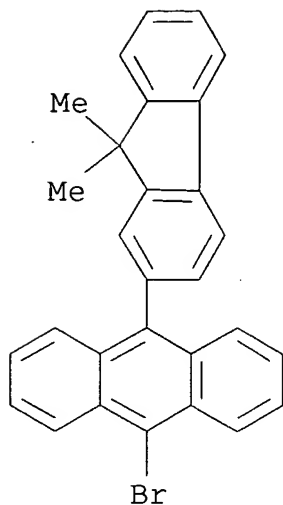
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CN Anthracene, 9-bromo-10-(6-methoxy-2-naphthalenyl)- (9CI) (CA  
INDEX NAME)



RN 400607-11-6 CAPLUS  
CN Anthracene, 9-bromo-10-[4'-(hexyloxy)[1,1'-biphenyl]-4-yl]- (9CI)  
(CA INDEX NAME)

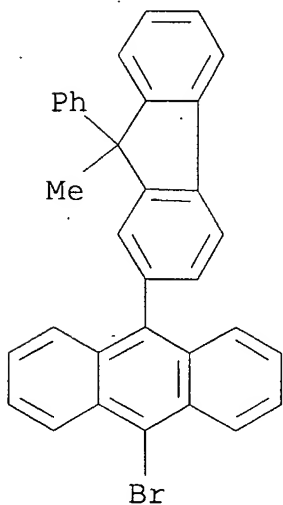


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CN Anthracene, 9-bromo-10-(9,9-dimethyl-9H-fluoren-2-yl)- (9CI) (CA  
INDEX NAME)



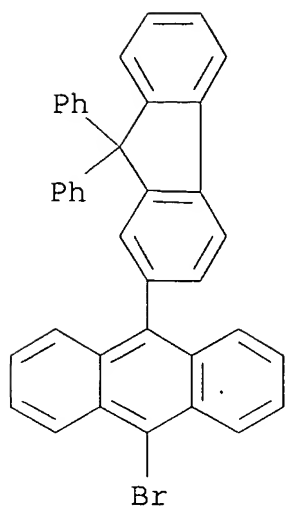
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CN Anthracene, 9-bromo-10-(9-methyl-9-phenyl-9H-fluoren-2-yl)- (9CI)  
(CA INDEX NAME)



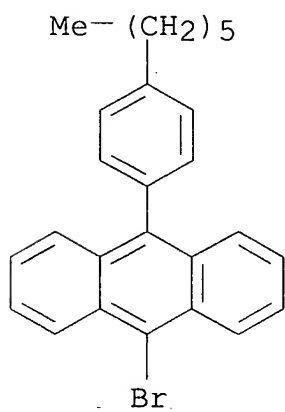
RN 400607-14-9 CAPLUS

CN Anthracene, 9-bromo-10-(9,9-diphenyl-9H-fluoren-2-yl)- (9CI) (CA  
INDEX NAME)



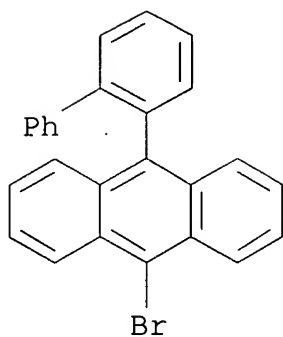
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CN Anthracene, 9-bromo-10-(4-hexylphenyl)- (9CI) (CA INDEX NAME)



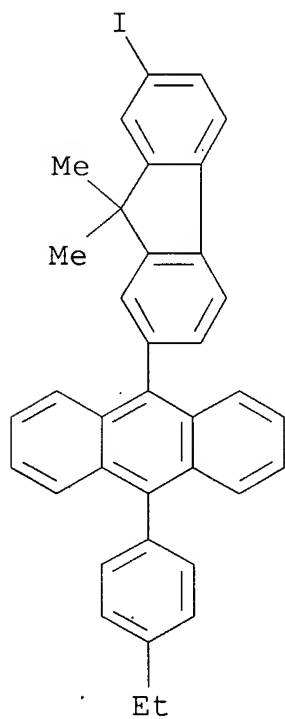
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CN Anthracene, 9-[1,1'-biphenyl]-2-yl-10-bromo- (9CI) (CA INDEX NAME)



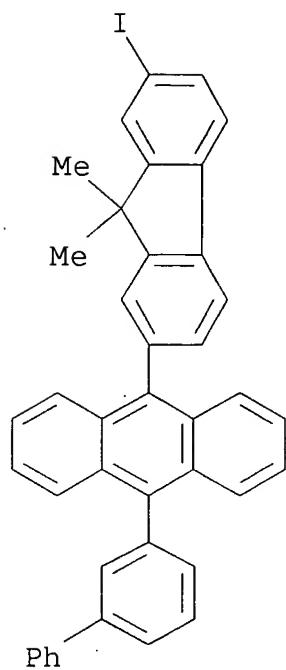
RN 400607-17-2 CAPLUS

CN Anthracene, 9-(4-ethylphenyl)-10-(7-iodo-9,9-dimethyl-9H-fluoren-2-yl)- (9CI) (CA INDEX NAME)



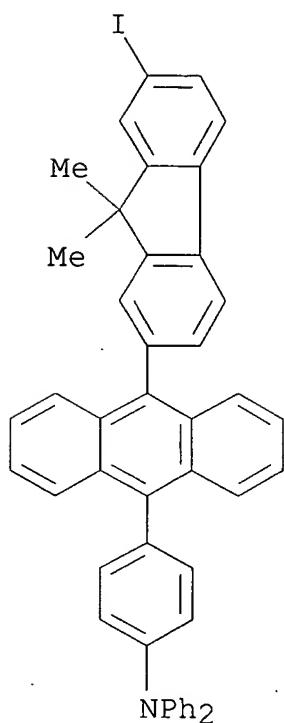
RN 400607-18-3 CAPLUS

CN Anthracene, 9-[1,1'-biphenyl]-3-yl-10-(7-iodo-9,9-dimethyl-9H-fluoren-2-yl)- (9CI) (CA INDEX NAME)



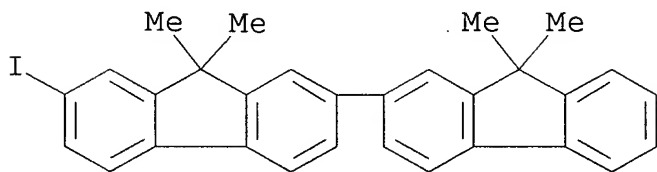
RN 400607-19-4 CAPLUS

CN Benzenamine, 4-[10-(7-iodo-9,9-dimethyl-9H-fluoren-2-yl)-9-anthracenyl]-N,N-diphenyl- (9CI) (CA INDEX NAME)



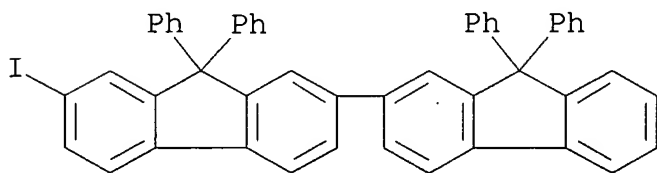
RN 400607-20-7 CAPLUS

CN 2,2'-Bi-9H-fluorene, 7-iodo-9,9,9',9'-tetramethyl- (9CI) (CA  
INDEX NAME)

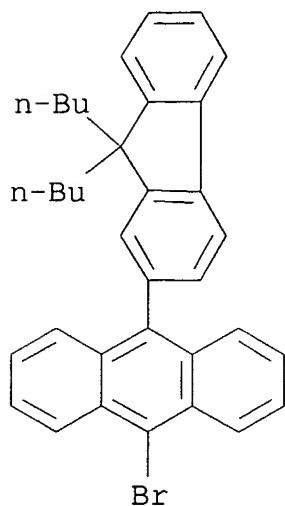


RN 400607-21-8 CAPLUS

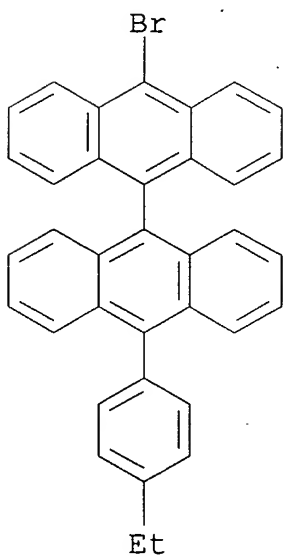
CN 2,2'-Bi-9H-fluorene, 7-iodo-9,9,9',9'-tetraphenyl- (9CI) (CA  
INDEX NAME)



RN 400607-22-9 CAPLUS  
CN Anthracene, 9-bromo-10-(9,9-dibutyl-9H-fluoren-2-yl)- (9CI) (CA INDEX NAME)



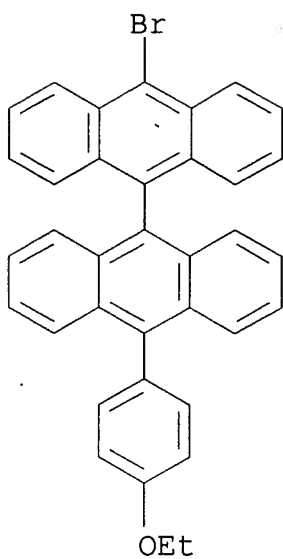
RN 400607-23-0 CAPLUS  
CN 9,9'-Bianthracene, 10-bromo-10'-(4-ethylphenyl)- (9CI) (CA INDEX NAME)



RN 400607-24-1 CAPLUS  
CN 9,9'-Bianthracene, 10-bromo-10'-(4-ethoxyphenyl)- (9CI) (CA INDEX NAME)

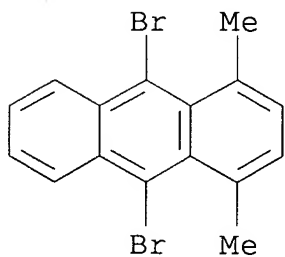


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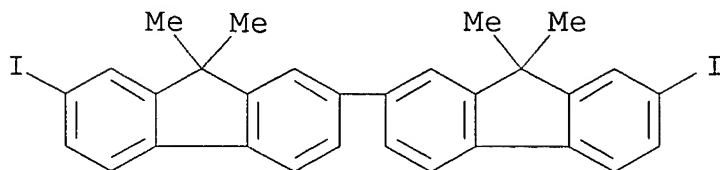
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CN Anthracene, 9,10-dibromo-1,4-dimethyl- (9CI) (CA INDEX NAME)

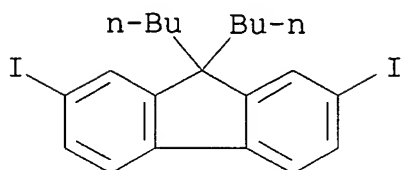


RN 400607-26-3 CAPLUS

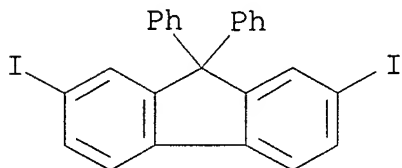
CN 2,2'-Bi-9H-fluorene, 7,7'-diiodo-9,9,9',9'-tetramethyl- (9CI) (CA INDEX NAME)



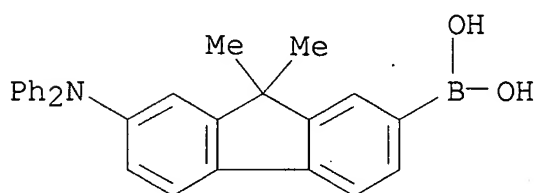
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CN 9H-Fluorene, 9,9-dibutyl-2,7-diiodo- (9CI) (CA INDEX NAME)



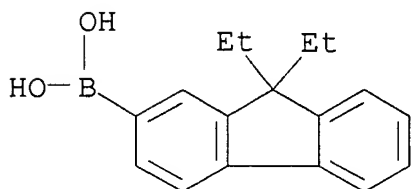
RN 400607-28-5 CAPLUS  
CN 9H-Fluorene, 2,7-diiodo-9,9-diphenyl- (9CI) (CA INDEX NAME)



RN 400607-29-6 CAPLUS  
CN Boronic acid, [7-(diphenylamino)-9,9-dimethyl-9H-fluoren-2-yl]-  
(9CI) (CA INDEX NAME)

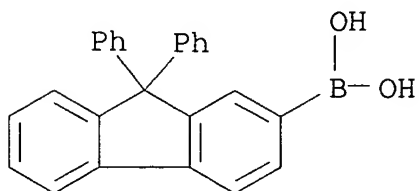


RN 400607-30-9 CAPLUS  
CN Boronic acid, (9,9-diethyl-9H-fluoren-2-yl)- (9CI) (CA INDEX NAME)



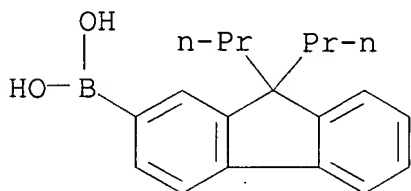
RN 400607-31-0 CAPLUS

CN Boronic acid, (9,9-diphenyl-9H-fluoren-2-yl)- (9CI) (CA INDEX NAME)



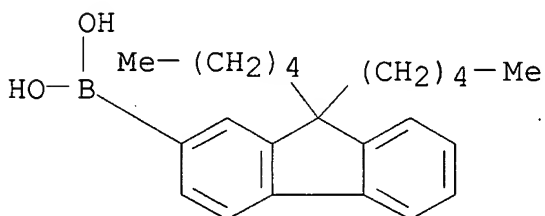
RN 400607-32-1 CAPLUS

CN Boronic acid, (9,9-dipropyl-9H-fluoren-2-yl)- (9CI) (CA INDEX NAME)



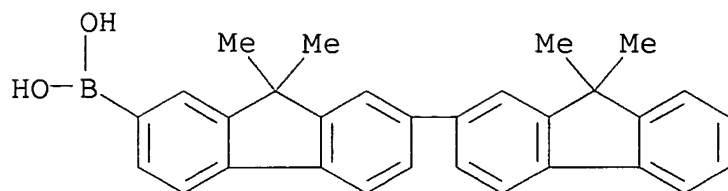
RN 400607-33-2 CAPLUS

CN Boronic acid, (9,9-dipentyl-9H-fluoren-2-yl)- (9CI) (CA INDEX NAME)



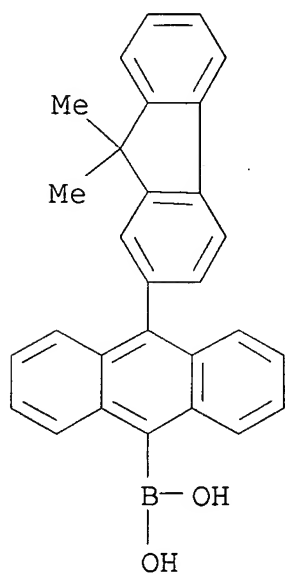
RN 400607-34-3 CAPLUS

CN Boronic acid, (9,9,9',9'-tetramethyl[2,2'-bi-9H-fluoren]-7-yl)- (9CI) (CA INDEX NAME)



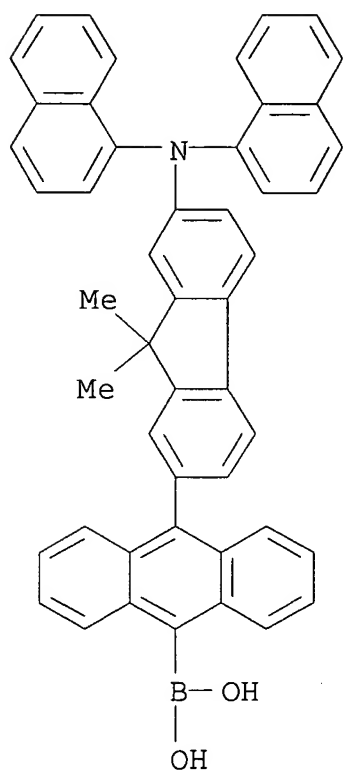
RN 400607-35-4 CAPLUS

CN Boronic acid, [10-(9,9-dimethyl-9H-fluoren-2-yl)-9-anthracenyl]-  
(9CI) (CA INDEX NAME)



RN 400607-36-5 CAPLUS

CN Boronic acid, [10-[7-(di-1-naphthalenylamino)-9,9-dimethyl-9H-fluoren-2-yl]-9-anthracenyl]- (9CI) (CA INDEX NAME)

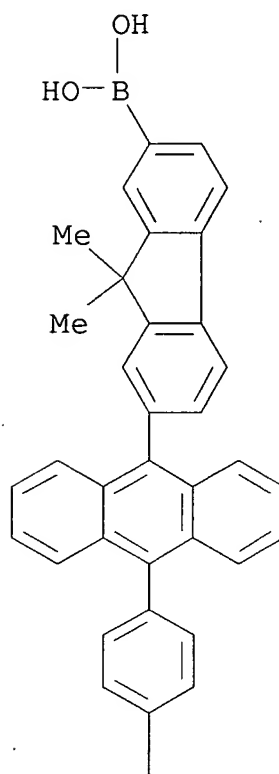


RN 400607-37-6 CAPLUS

CN Boronic acid, [10-(9,9-diphenyl-9H-fluoren-2-yl)-9-anthracenyl]-  
(9CI) (CA INDEX NAME)



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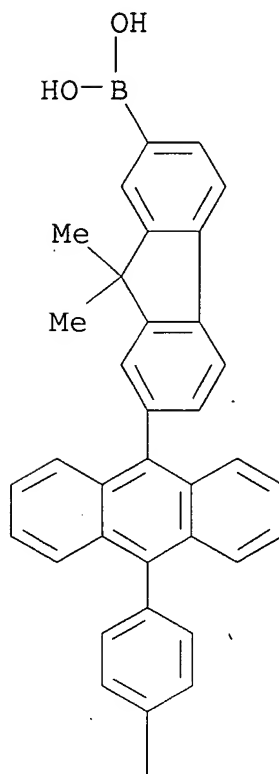


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RN 400607-39-8 CAPLUS  
CN Boronic acid, [7-[10-(4-ethoxyphenyl)-9-anthracenyl]-9,9-dimethyl-9H-fluoren-2-yl]- (9CI) (CA INDEX NAME)

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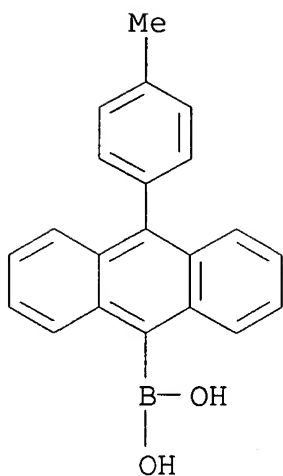


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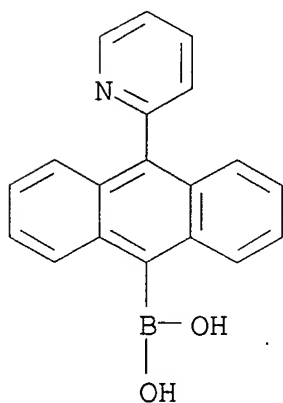
RN 400607-40-1 CAPLUS  
CN Boronic acid, [10-(4-methylphenyl)-9-anthracenyl]- (9CI) (CA  
INDEX NAME)





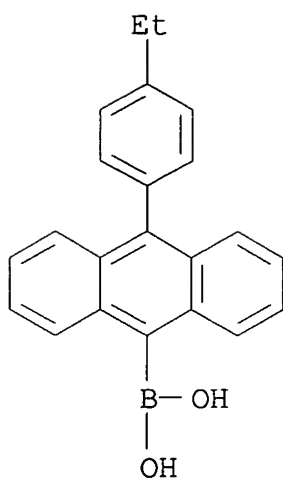
RN 400607-41-2 CAPLUS

CN Boronic acid, [10-(2-pyridinyl)-9-anthracenyl]- (9CI) (CA INDEX NAME)



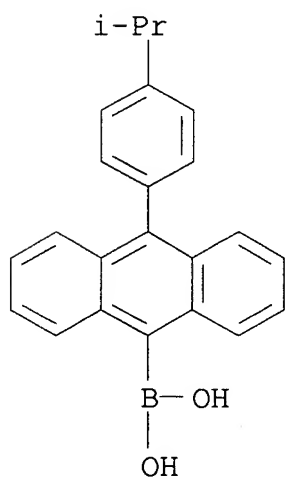
RN 400607-42-3 CAPLUS

CN Boronic acid, [10-(4-ethylphenyl)-9-anthracenyl]- (9CI) (CA INDEX NAME)



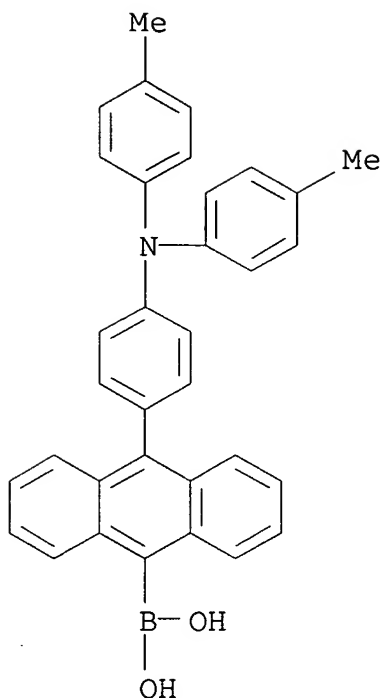
RN 400607-43-4 CAPLUS

CN Boronic acid, [10-[4-(1-methylethyl)phenyl]-9-anthracenyl]- (9CI)  
(CA INDEX NAME)



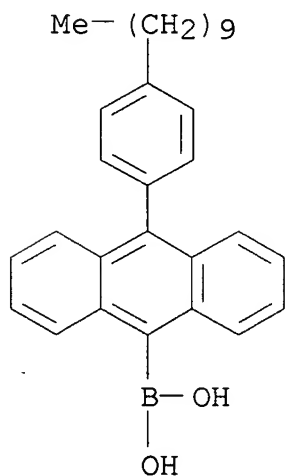
RN 400607-44-5 CAPLUS

CN Boronic acid, [10-[4-[bis(4-methylphenyl)amino]phenyl]-9-anthracenyl]- (9CI) (CA INDEX NAME)



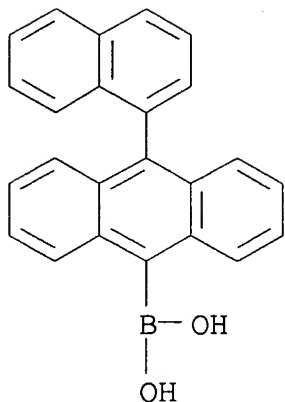
RN 400607-45-6 CAPLUS

CN Boronic acid, [10-(4-decylphenyl)-9-anthracenyl]- (9CI) (CA INDEX NAME)



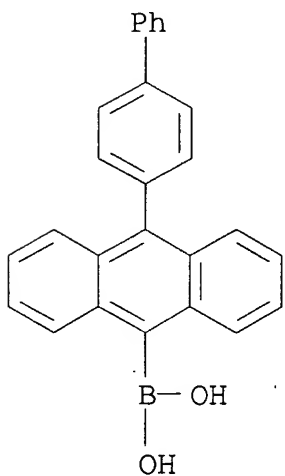
RN 400607-46-7 CAPLUS

CN Boronic acid, [10-(1-naphthalenyl)-9-anthracenyl]- (9CI) (CA INDEX NAME)



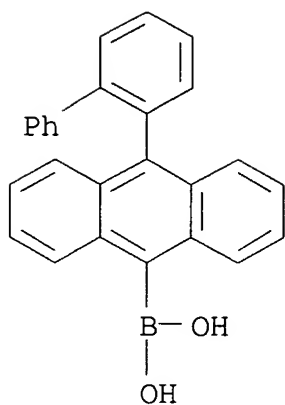
RN 400607-47-8 CAPLUS

CN Boronic acid, (10-[1,1'-biphenyl]-4-yl-9-anthracenyl)- (9CI) (CA  
INDEX NAME)



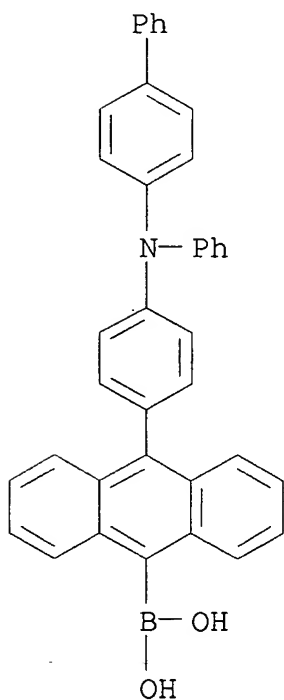
RN 400607-48-9 CAPLUS

CN Boronic acid, (10-[1,1'-biphenyl]-2-yl-9-anthracenyl)- (9CI) (CA  
INDEX NAME)



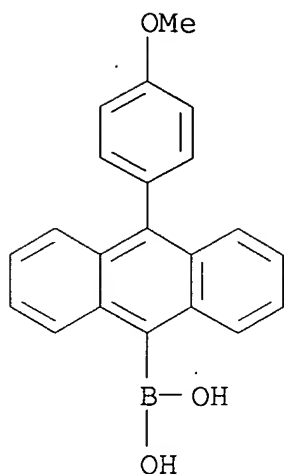
RN 400607-49-0 CAPLUS

CN Boronic acid, [10-[4-([1,1'-biphenyl]-4-ylphenylamino)phenyl]-9-anthracenyl]- (9CI) (CA INDEX NAME)



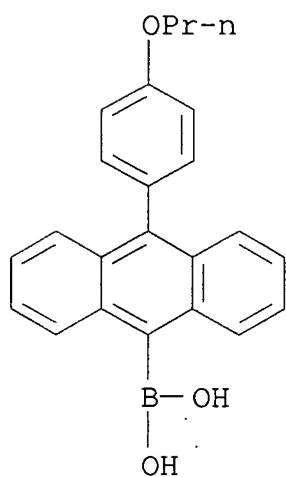
RN 400607-50-3 CAPLUS

CN Boronic acid, [10-(4-methoxyphenyl)-9-anthracenyl]- (9CI) (CA INDEX NAME)



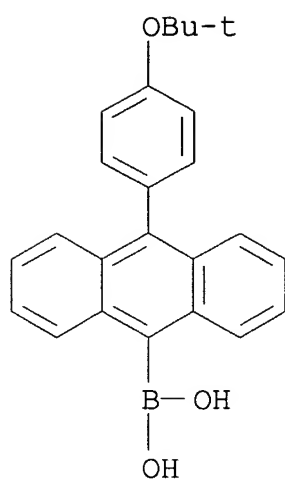
RN 400607-51-4 CAPLUS

CN Boronic acid, [10-(4-propoxyphenyl)-9-anthracenyl]- (9CI) (CA INDEX NAME)



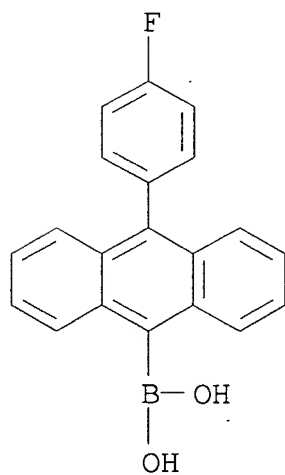
RN 400607-52-5 CAPLUS

CN Boronic acid, [10-[4-(1,1-dimethylethoxy)phenyl]-9-anthracenyl]- (9CI) (CA INDEX NAME)



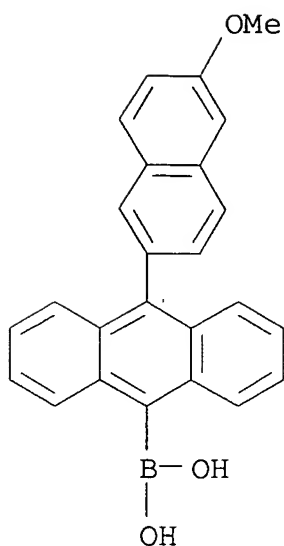
RN 400607-53-6 CAPLUS

CN Boronic acid, [10-(4-fluorophenyl)-9-anthracenyl]- (9CI) (CA INDEX NAME)



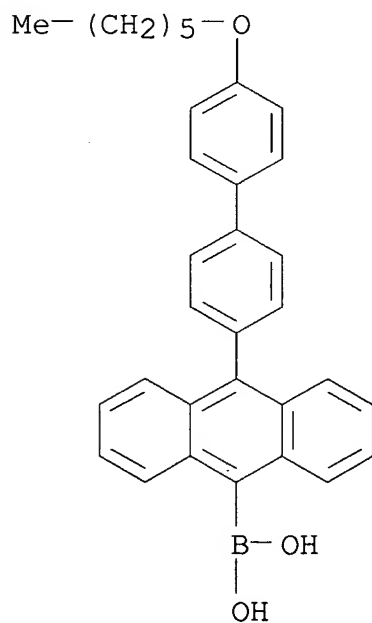
RN 400607-54-7 CAPLUS

CN Boronic acid, [10-(6-methoxy-2-naphthalenyl)-9-anthracenyl]- (9CI)  
(CA INDEX NAME)



RN 400607-55-8 CAPLUS

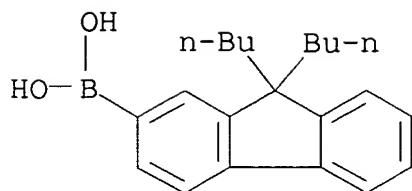
CN Boronic acid, [10-[4'-(hexyloxy)[1,1'-biphenyl]-4-yl]-9-anthracenyl]- (9CI) (CA INDEX NAME)



RN 400607-56-9 CAPLUS

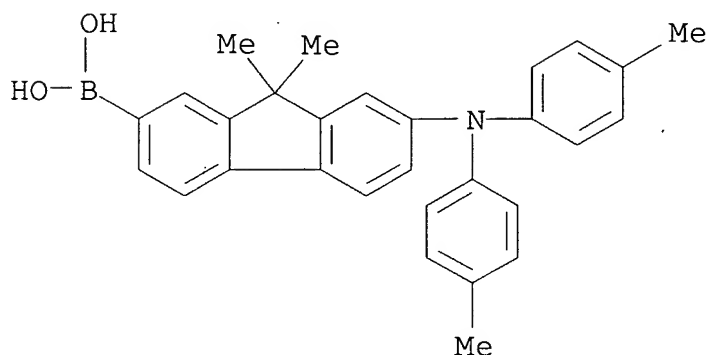
CN Boronic acid, (9,9-dibutyl-9H-fluoren-2-yl)- (9CI) (CA INDEX NAME)





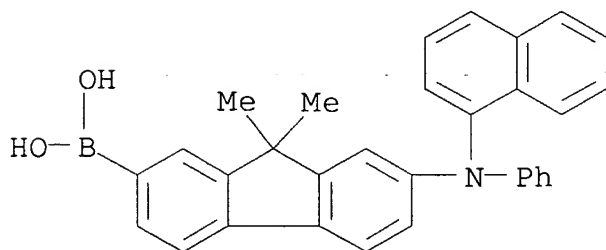
RN 400607-57-0 CAPLUS

CN Boronic acid, [7-[bis(4-methylphenyl)amino]-9,9-dimethyl-9H-fluoren-2-yl]- (9CI) (CA INDEX NAME)



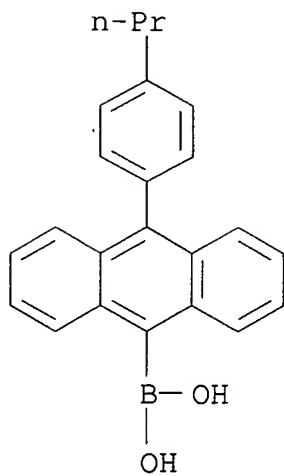
RN 400607-58-1 CAPLUS

CN Boronic acid, [9,9-dimethyl-7-(1-naphthalenylphenylamino)-9H-fluoren-2-yl]- (9CI) (CA INDEX NAME)



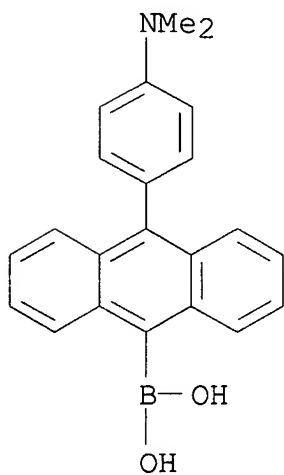
RN 400607-59-2 CAPLUS

CN Boronic acid, [10-(4-propylphenyl)-9-anthracenyl]- (9CI) (CA INDEX NAME)



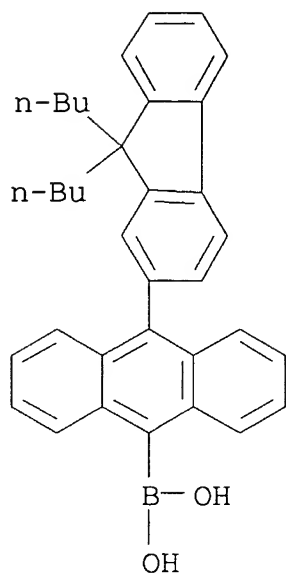
RN 400607-60-5 CAPLUS

CN Boronic acid, [10-[4-(dimethylamino)phenyl]-9-anthracenyl]- (9CI)  
(CA INDEX NAME)



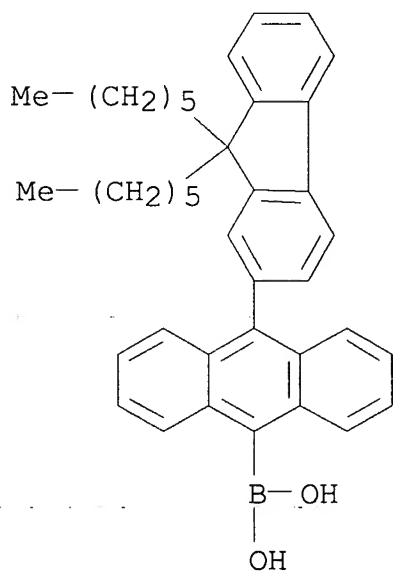
RN 400607-61-6 CAPLUS

CN Boronic acid, [10-(9,9-dibutyl-9H-fluoren-2-yl)-9-anthracenyl]-  
(9CI) (CA INDEX NAME)



RN 400607-62-7 CAPLUS

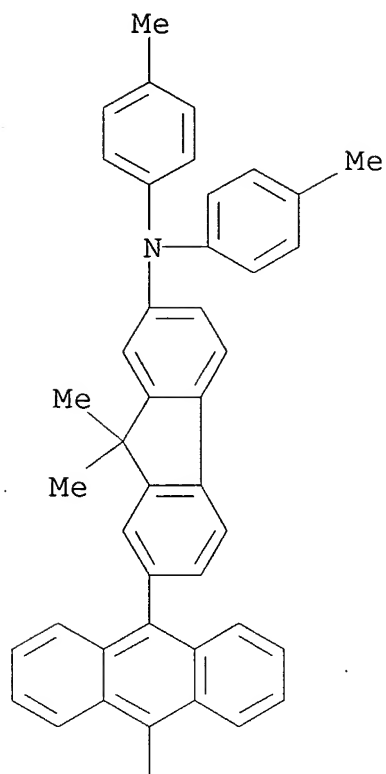
CN Boronic acid, [10-(9,9-dihexyl-9H-fluoren-2-yl)-9-anthracenyl]-  
(9CI) (CA INDEX NAME)



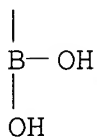
RN 400607-63-8 CAPLUS

CN Boronic acid, [10-[7-bis(4-methylphenyl)amino]-9,9-dimethyl-9H-fluoren-2-yl]-9-anthracenyl]- (9CI) (CA INDEX NAME)

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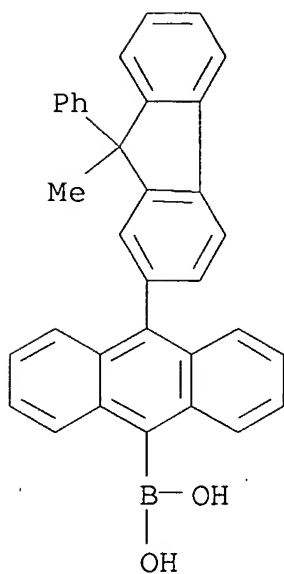


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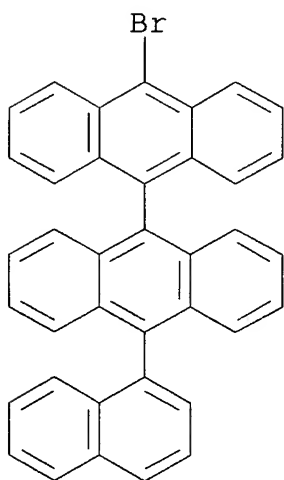


RN 400607-64-9 CAPLUS

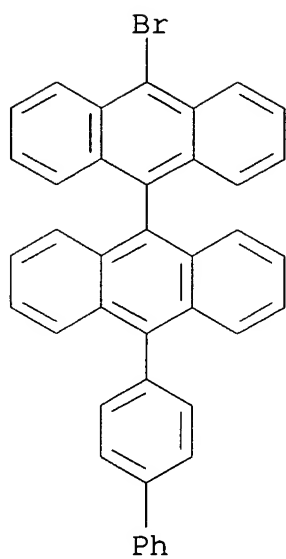
CN Boronic acid, [10-(9-methyl-9-phenyl-9H-fluoren-2-yl)-9-anthracenyl]- (9CI) (CA INDEX NAME)



RN 400607-65-0 CAPLUS  
CN 9,9'-Bianthracene, 10-bromo-10'-(1-naphthalenyl)- (9CI) (CA INDEX NAME)

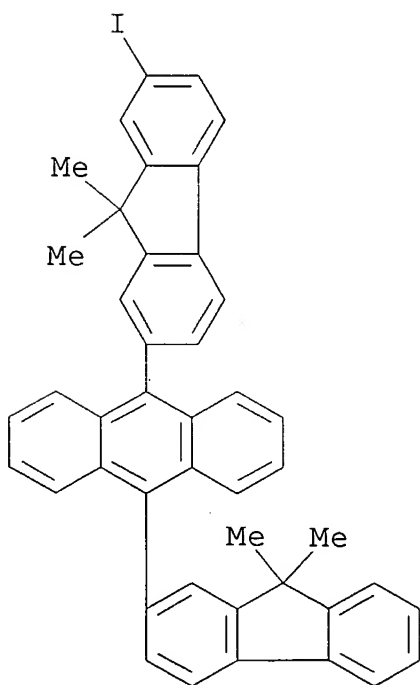


RN 400607-66-1 CAPLUS  
CN 9,9'-Bianthracene, 10-[1,1'-biphenyl]-4-yl-10'-bromo- (9CI) (CA INDEX NAME)



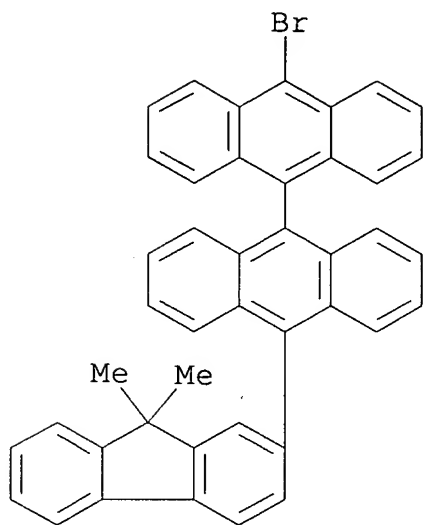
RN 400607-67-2 CAPLUS

CN Anthracene, 9-(9,9-dimethyl-9H-fluoren-2-yl)-10-(7-iodo-9,9-dimethyl-9H-fluoren-2-yl)- (9CI) (CA INDEX NAME)



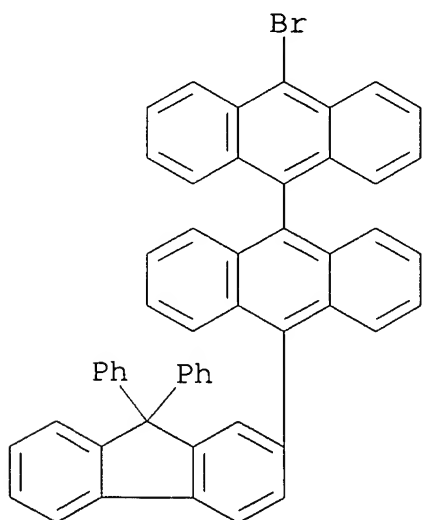
RN 400607-68-3 CAPLUS

- CN 9,9'-Bianthrane, 10-bromo-10'-(9,9-dimethyl-9H-fluoren-2-yl)-  
(9CI) (CA INDEX NAME)



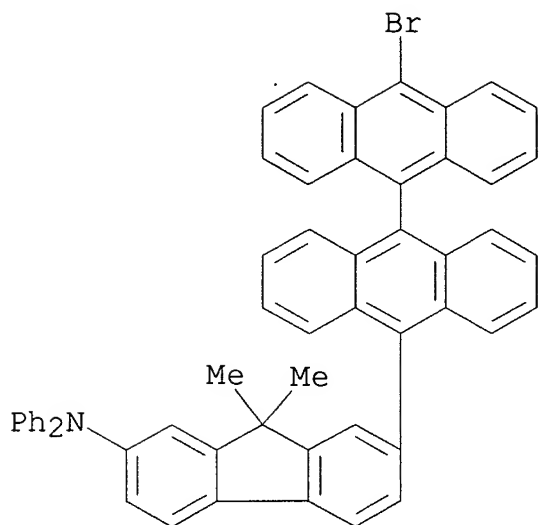
RN 400607-69-4 CAPLUS

CN 9,9'-Bianthrane, 10-bromo-10'-(9,9-diphenyl-9H-fluoren-2-yl)-  
(9CI) (CA INDEX NAME)



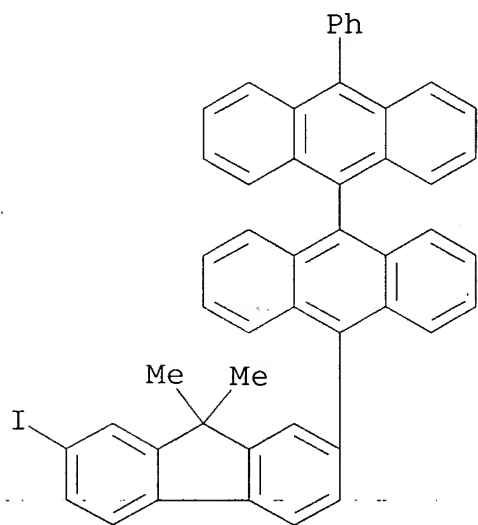
RN 400607-70-7 CAPLUS

CN 9H-Fluoren-2-amine, 7-(10'-bromo[9,9'-bianthrane]-10-yl)-9,9-  
dimethyl-N,N-diphenyl- (9CI) (CA INDEX NAME)



RN 400607-71-8 CAPLUS

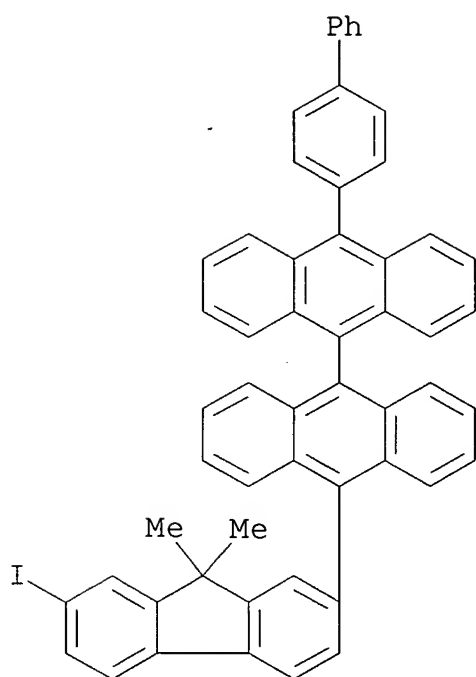
CN 9,9'-Bianthrane, 10-(7-iodo-9,9-dimethyl-9H-fluoren-2-yl)-10'-phenyl- (9CI) (CA INDEX NAME)



RN 400607-72-9 CAPLUS

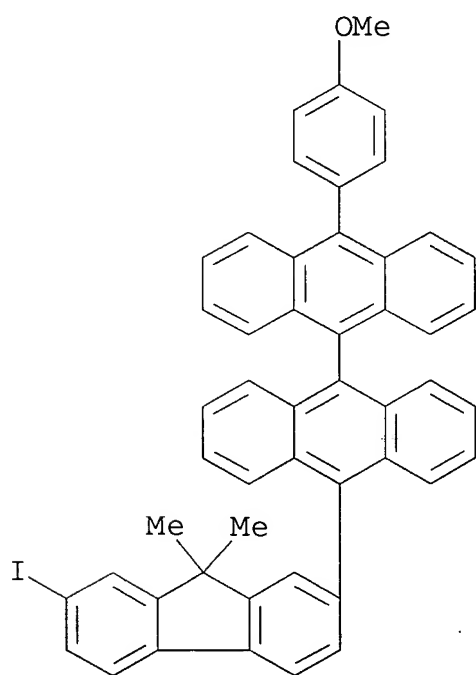
CN 9,9'-Bianthrane, 10-[1,1'-biphenyl]-4-yl-10'-(7-iodo-9,9-dimethyl-9H-fluoren-2-yl)- (9CI) (CA INDEX NAME)





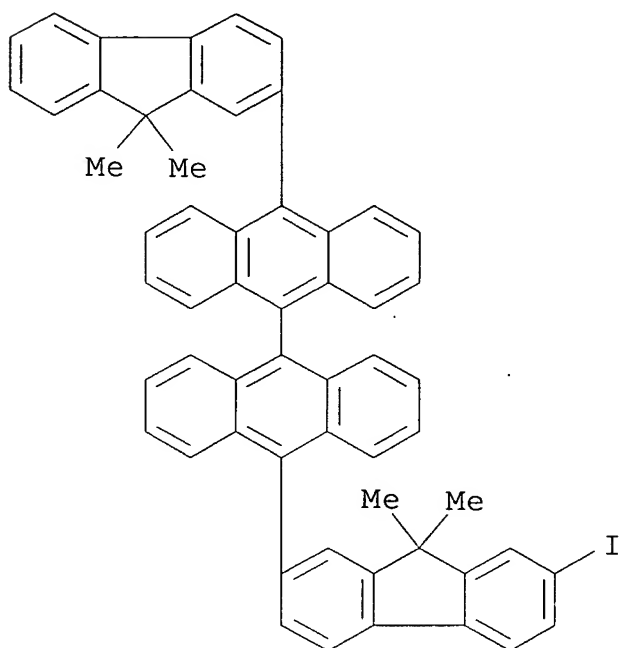
RN 400607-73-0 CAPLUS

CN 9,9'-Bianthracycline, 10-(7-iodo-9,9-dimethyl-9H-fluoren-2-yl)-10'-(4-methoxyphenyl)- (9CI) (CA INDEX NAME)



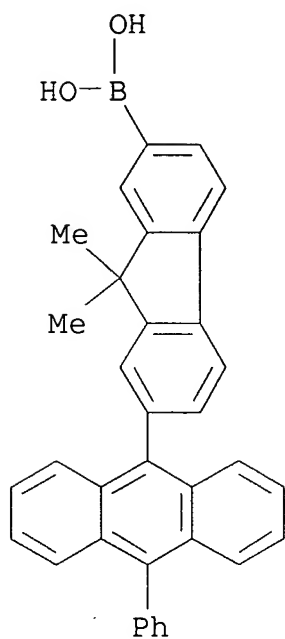
RN 400607-74-1 CAPLUS

CN 9,9'-Bianthrane, 10-(9,9-dimethyl-9H-fluoren-2-yl)-10'-(7-iodo-9,9-dimethyl-9H-fluoren-2-yl)- (9CI) (CA INDEX NAME)



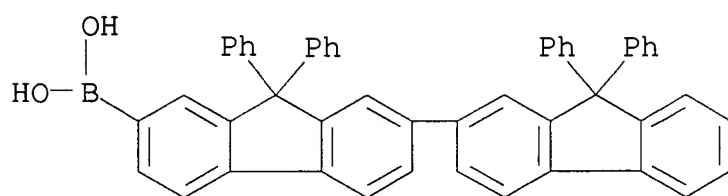
RN 400607-75-2 CAPLUS

CN Boronic acid, [9,9-dimethyl-7-(10-phenyl-9-anthracenyl)-9H-fluoren-2-yl]- (9CI) (CA INDEX NAME)



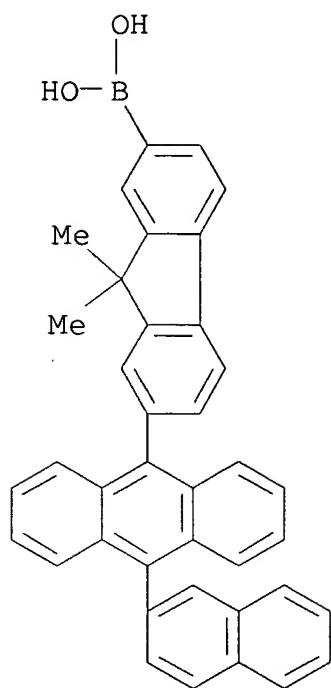
RN 400607-76-3 CAPLUS

CN Boronic acid, (9,9,9',9'-tetraphenyl[2,2'-bi-9H-fluoren]-7-yl)-  
(9CI) (CA INDEX NAME)



RN 400607-77-4 CAPLUS

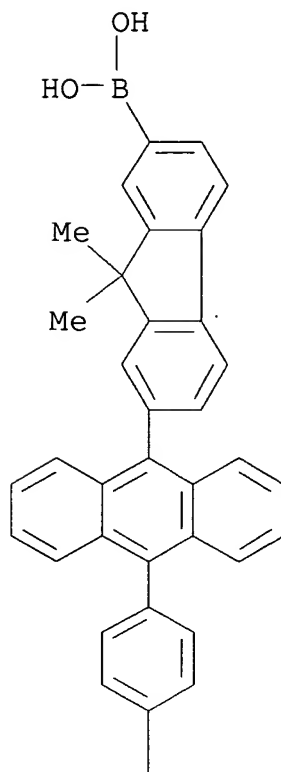
CN Boronic acid, [9,9-dimethyl-7-[10-(2-naphthalenyl)-9-anthracenyl]-  
9H-fluoren-2-yl]- (9CI) (CA INDEX NAME)



RN 400607-78-5 CAPLUS

CN Boronic acid, [7-[10-(4-methoxyphenyl)-9-anthracenyl]-9,9-dimethyl-9H-fluoren-2-yl]- (9CI) (CA INDEX NAME)

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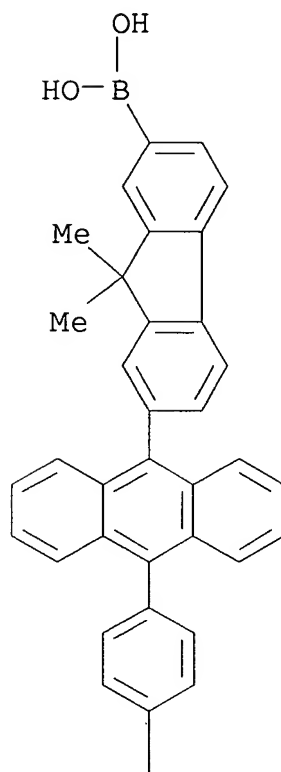


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RN 400607-79-6 CAPLUS  
CN Boronic acid, [7-(10-[1,1'-biphenyl]-4-yl-9-anthracenyl)-9,9-dimethyl-9H-fluoren-2-yl]- (9CI) (CA INDEX NAME)

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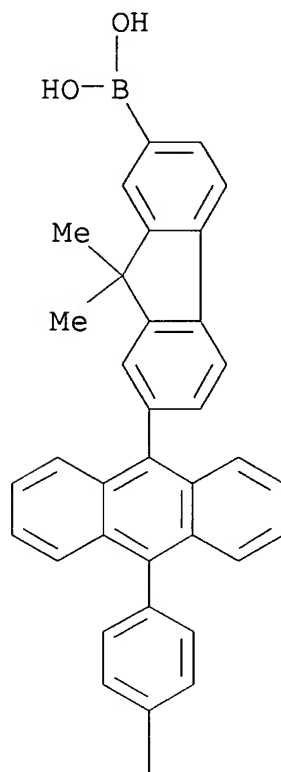


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RN 400607-80-9 CAPLUS  
CN Boronic acid, [7-[10-(4-butylphenyl)-9-anthracenyl]-9,9-dimethyl-9H-fluoren-2-yl]- (9CI) (CA INDEX NAME)

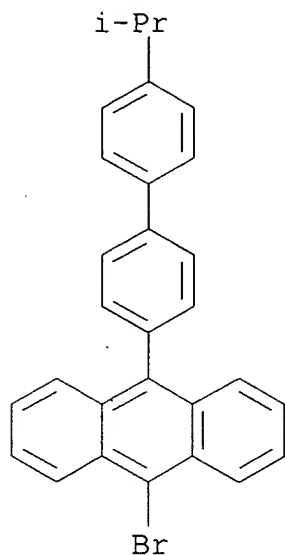
PAGE 1-A



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RN 400607-81-0 CAPLUS  
CN Anthracene, 9-bromo-10-[4'-(1-methylethyl)[1,1'-biphenyl]-4-yl]-  
(9CI) (CA INDEX NAME)



- IC ICM C07C013-58  
ICS C07C025-22; C07C043-235; C07C211-53; C07C211-61; C09K011-06;  
C07D213-16; C07D333-18; C07D215-04; H05B033-14
- CC 73-11 (**Optical**, Electron, and Mass Spectroscopy and  
Other Related Properties)  
Section cross-reference(s): 24, 74
- IT 2085-33-8  
(electron injection/transport **layer**; preparation of  
hydrocarbon compound for organic electroluminescent devices)
- IT 38215-36-0  
(green **light-emitting** component; preparation of  
hydrocarbon compound for organic electroluminescent devices)
- IT 65181-78-4 124729-98-2  
(hole injection/transport **layer**; preparation of  
hydrocarbon compound for organic electroluminescent devices)
- IT 24601-13-6 146162-48-3 146162-54-1  
(**light-emitting layer** containing;  
preparation of hydrocarbon compound for organic electroluminescent  
devices)
- IT 51325-91-8, DCM 1  
(orange **light-emitting** component; preparation of  
hydrocarbon compound for organic electroluminescent devices)
- IT 400605-76-7 400605-78-9 400605-79-0  
400605-81-4 400605-82-5 400605-84-7  
400605-85-8 400605-87-0 400605-88-1  
400605-90-5 400605-92-7 400605-94-9  
400605-96-1 400605-97-2 400605-99-4  
400606-00-0 400606-02-2 400606-03-3



400606-04-4 400606-06-6 400606-07-7  
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400606-93-1 400606-94-2 400606-95-3  
400606-96-4 400606-97-5 400606-98-6

(preparation of hydrocarbon compound for organic electroluminescent devices)

IT 523-27-3 23673-92-9 23674-20-6  
121848-75-7 144981-86-2 144981-88-4  
145005-98-7 158902-11-5 278176-05-9  
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400607-47-8 400607-48-9 400607-49-0  
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400607-53-6 400607-54-7 400607-55-8  
400607-56-9 400607-57-0 400607-58-1  
400607-59-2 400607-60-5 400607-61-6  
400607-62-7 400607-63-8 400607-64-9  
400607-65-0 400607-66-1 400607-67-2  
400607-68-3 400607-69-4 400607-70-7  
400607-71-8 400607-72-9 400607-73-0  
400607-74-1 400607-75-2 400607-76-3  
400607-77-4 400607-78-5 400607-79-6  
400607-80-9 400607-81-0

(preparation of hydrocarbon compound for organic electroluminescent devices)

REFERENCE COUNT: 2 THERE ARE 2 CITED REFERENCES AVAILABLE  
FOR THIS RECORD. ALL CITATIONS AVAILABLE  
IN THE RE FORMAT

L40 ANSWER 52 OF 65 CAPLUS COPYRIGHT 2005 ACS on STN

ACCESSION NUMBER: 2001:400127 CAPLUS

DOCUMENT NUMBER: 135:187082

TITLE: White and blue temperature stable and  
efficient OLEDs using amorphous spiro  
transport and spiro emitting compounds

AUTHOR(S): Spreitzer, Hubert; Vestweber, Horst; Stoessel,  
Philipp; Becker, Heinrich

CORPORATE SOURCE: Covion Organic Semiconductors GmbH, Frankfurt,  
D-65926, Germany

SOURCE: Proceedings of SPIE-The International Society  
for Optical Engineering (2001), 4105(Organic  
Light-Emitting Materials and Devices IV),  
125-133

CODEN: PSISDG; ISSN: 0277-786X

PUBLISHER: SPIE-The International Society for Optical  
Engineering

DOCUMENT TYPE: Journal

LANGUAGE: English

AB The temperature stability of white and blue OLEDs was studied by  
observing the I-V, EL-V and the spectral characteristics of  
various devices stored at elevated temperature ( $\leq 130^\circ$ ). - -  
Blue **multilayer** organic light emitting  
diodes (OLEDs) containing PEDOT (polyethylenedioxythiophene) or PANI  
(polyaniline) derivs. as the hole injection and buffer  
**layer**, aromatic diamines like Spiro-TAD (2,2',7,7'-  
tetrakis(diphenylamino)spiro-9,9'-bifluorene) as a hole transport  
material (HTM), Spiro-DPVBi (2,2',7,7'-tetrakis(2,2-  
diphenylvinyl)spiro-9,9'-bifluorene) as an emitting material (EM)

and of Alq3 (tris(8-hydroxyquinolinato)aluminum) as the electron-injection and electron-transport **layer** (ETL) were fabricated. White OLEDs were prepared, containing an addnl. DCM (dicyanmethylen-2-methyl-6-(p-dimethylaminostyryl)-4H-pyran) doped Alq3 **layer** between the Spiro-DPVBi and Alq3 **layer**. Use of Spiro-TAD as a hole transport material (HTM) and of Spiro-DPVBi as an emitting material (EM) resulted in dramatically improved temperature stability: for the white and blue

OLED

no significant deterioration up to 130° were found. Devices consisting of non spiro components like NPB and/or DPVBi already started to degrade at much lower temps.

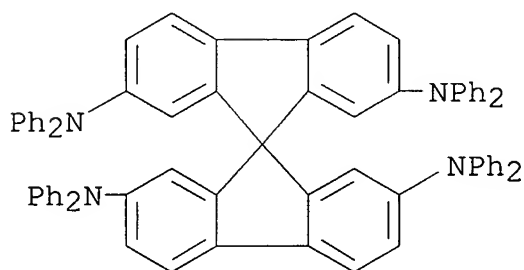
IT **189363-47-1**, 2,2',7,7'-Tetrakis(diphenylamino)spiro-9,9'-bifluorene

(white and blue temperature stable and efficient LEDs using amorphous

transport material)

RN 189363-47-1 CAPLUS

CN 9,9'-Spirobi[9H-fluorene]-2,2',7,7'-tetramine,  
N,N,N',N',N'',N'',N''',N''''-octaphenyl- (9CI) (CA INDEX NAME)

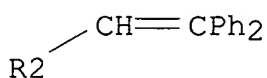
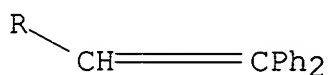
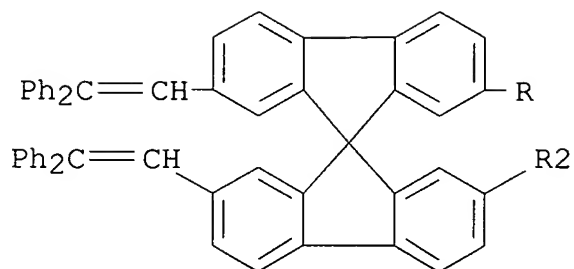


IT **296269-66-4**, 2,2',7,7'-Tetrakis(2,2-diphenylvinyl)spiro-9,9'-bifluorene

(white and blue temperature stable and efficient LEDs using emitting material)

RN 296269-66-4 CAPLUS

CN 9,9'-Spirobi[9H-fluorene], 2,2',7,7'-tetrakis(2,2-diphenylethenyl)-  
(9CI) (CA INDEX NAME)



- CC 73-5 (**Optical**, Electron, and Mass Spectroscopy and Other Related Properties)  
Section cross-reference(s): 76
- IT Electric current-potential relationship  
Electric transport properties  
**Luminescence**, electroluminescence  
(of white and blue temperature stable and efficient LEDs using amorphous spiro transport and spiro emitting compds.)
- IT **189363-47-1**, 2,2',7,7'-Tetrakis(diphenylamino)spiro-9,9'-bifluorene  
(white and blue temperature stable and efficient LEDs using amorphous transport material)
- IT **296269-66-4**, 2,2',7,7'-Tetrakis(2,2-diphenylvinyl)spiro-9,9'-bifluorene  
(white and blue temperature stable and efficient LEDs using emitting material)
- REFERENCE COUNT: 6 THERE ARE 6 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

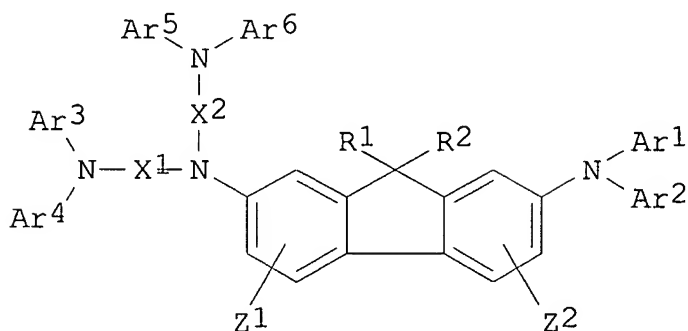
L40 ANSWER 53 OF 65 CAPLUS COPYRIGHT 2005 ACS on STN  
 ACCESSION NUMBER: 2000:833279 CAPLUS  
 DOCUMENT NUMBER: 134:23332  
 TITLE: Preparation of 2-(diarylamino)-7-bis[(di(arylamino)aryl)amino]fluorene

INVENTOR(S): Nakatsuka, Masakatsu; Shimamura, Takehiko  
 PATENT ASSIGNEE(S): Mitsui Chemical Industry Co., Ltd., Japan  
 SOURCE: Jpn. Kokai Tokkyo Koho, 59 pp.  
 CODEN: JKXXAF  
 DOCUMENT TYPE: Patent  
 LANGUAGE: Japanese  
 FAMILY ACC. NUM. COUNT: 1  
 PATENT INFORMATION:

derivatives as hole transport materials for organic electroluminescent devices

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP.2000327640	A2	20001128	JP 1999-145130	1999 0525
PRIORITY APPLN. INFO.:			JP 1999-145130	1999 0525

OTHER SOURCE(S): MARPAT 134:23332  
GI



I

AB The title compds. [I; Ar1 - Ar6 = (un)substituted aryl; NAr1Ar2, NAr3Ar4, or NAr5Ar6 forms N-containing heterocyclyl; R1, R2 = H, linear or branched alkyl, (un)substituted aryl or aralkyl; Z1, Z2 = H, halo, linear or branched alkyl or alkoxy, (un)substituted aryl; X1, X2 = (un)substituted arylene] are prepared Thus, 2-[N,N-bis(4-methylphenyl)amino]-9,9-dimethyl-9H-7-iodofluorene 10.3, N,N-bis[4-(diphenylamino)phenyl]amine 10, Cu powder 10, and K2CO3 20 g were refluxed in o-dichlorobenzene at 190° for 8 h to give 2-[bis(4-methylphenyl)amino]-9,9-dimethyl-7-[bis(4-(diphenylamino)phenyl)amino]fluorene (II) which was purified by

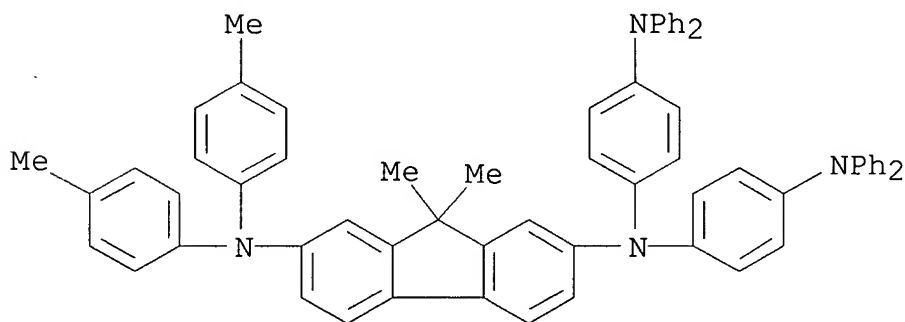
sublimation at 350° and 10-6 torr. An organic electroluminescent device with a hole transport layer of II, an electron transport layer of aluminum tris(8-quinolinolate), and a Ag/Mg cathode electrode vapor-deposited on an ITO transparent substrate exhibited green luminescence with brilliance of 580 cd/cm<sup>2</sup> at 50°, 6.5 V, and 10 mA/cm<sup>2</sup>.

IT 228706-59-0P 228706-60-3P 228706-63-6P  
 228706-66-9P 228706-68-1P 228706-73-8P  
 228706-79-4P 228706-84-1P 309715-70-6P  
 309715-71-7P 309715-73-9P 309715-76-2P  
 309715-79-5P 309715-82-0P 309715-84-2P  
 309715-87-5P 309715-89-7P 309715-91-1P  
 309715-93-3P 309715-95-5P 309715-97-7P  
 309715-98-8P 309716-00-5P 309716-02-7P  
 309716-04-9P 309716-06-1P 309716-08-3P

(preparation of (diarylamino)[((arylamino)aryl)amino]fluorene derivs. as hole transport materials for organic electroluminescent devices)

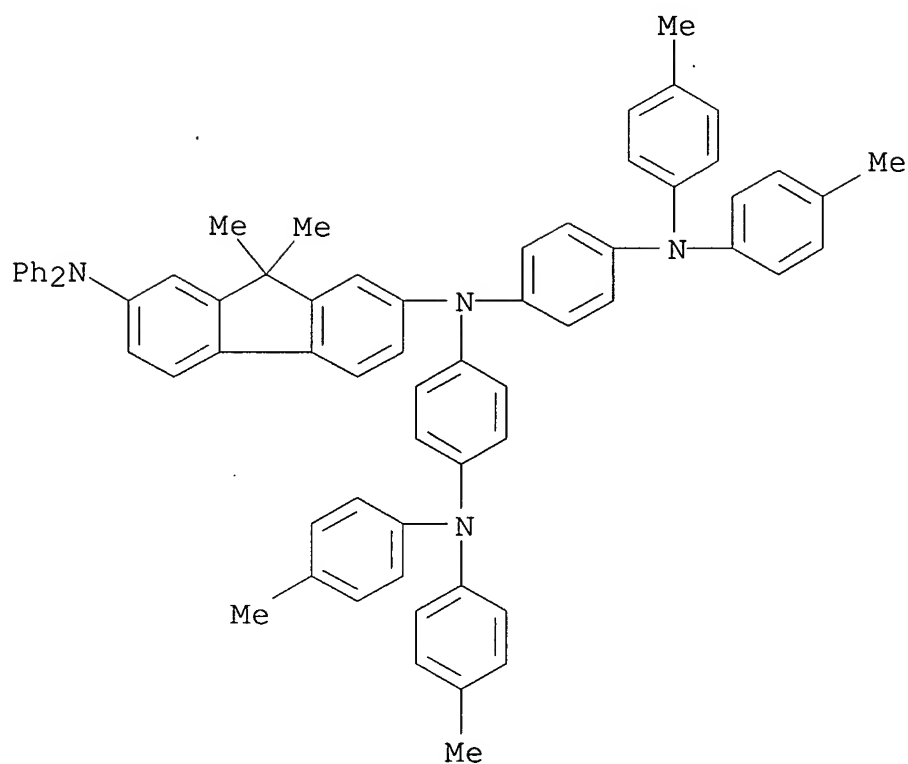
RN 228706-59-0 CAPLUS

CN 9H-Fluorene-2,7-diamine, N,N-bis[4-(diphenylamino)phenyl]-9,9-dimethyl-N',N'-bis(4-methylphenyl)- (9CI) (CA INDEX NAME)

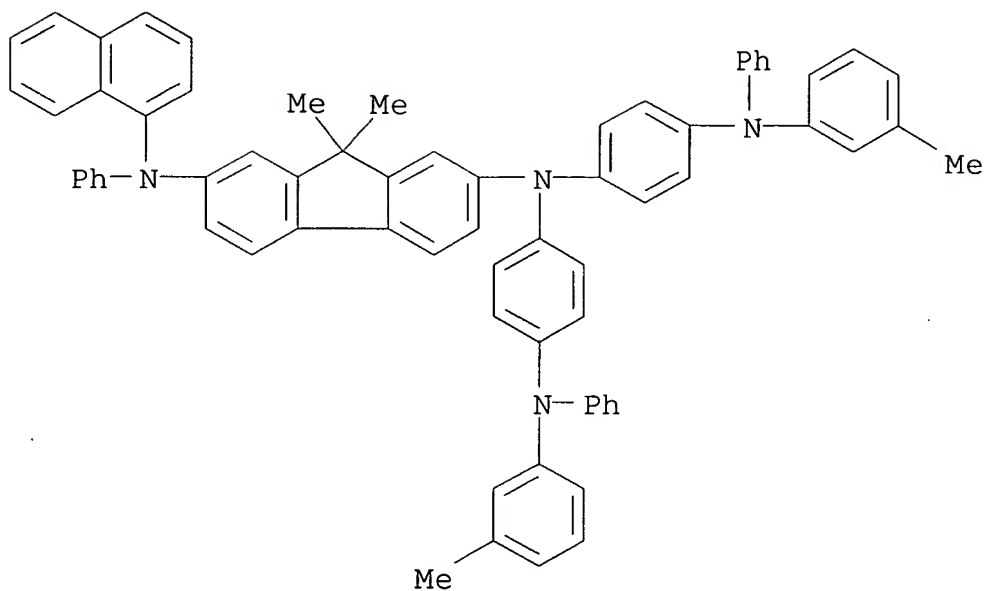


RN 228706-60-3 CAPLUS

CN 9H-Fluorene-2,7-diamine, N,N-bis[4-[bis(4-methylphenyl)amino]phenyl]-9,9-dimethyl-N',N'-diphenyl- (9CI) (CA INDEX NAME)

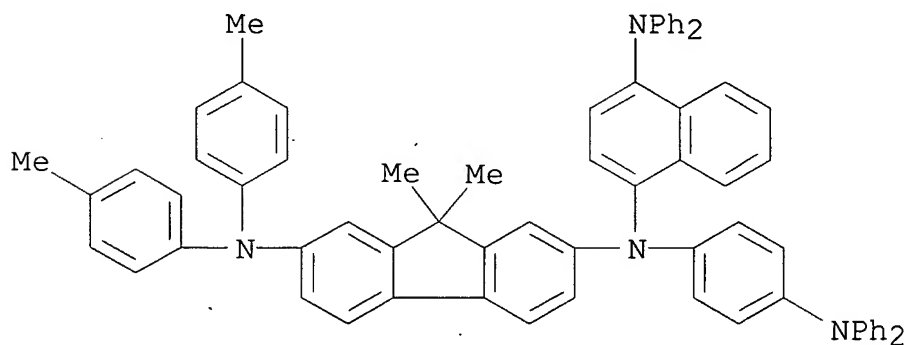


RN 228706-63-6 CAPLUS  
CN 9H-Fluorene-2,7-diamine, 9,9-dimethyl-N,N-bis[4-[(3-methylphenyl)phenylamino]phenyl]-N'-1-naphthalenyl-N'-phenyl-  
(9CI) (CA INDEX NAME)



RN 228706-66-9 CAPLUS

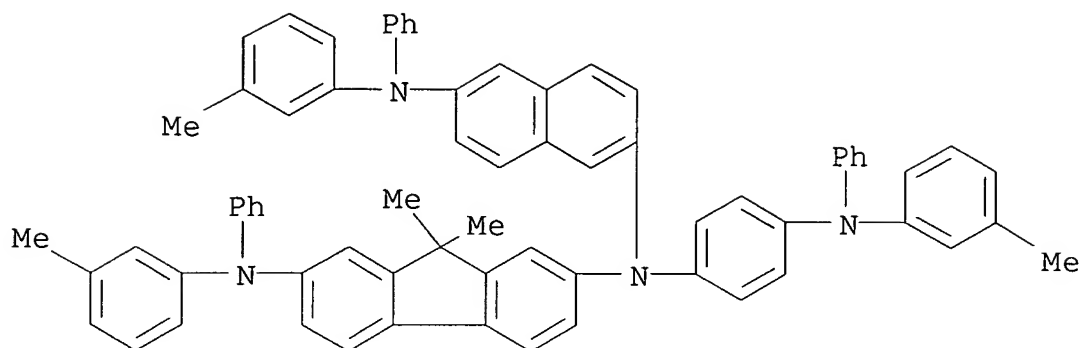
CN 9H-Fluorene-2,7-diamine, N-[4-(diphenylamino)-1-naphthalenyl]-N-[4-(diphenylamino)phenyl]-9,9-dimethyl-N',N'-bis(4-methylphenyl)-(9CI) (CA INDEX NAME)



RN 228706-68-1 CAPLUS

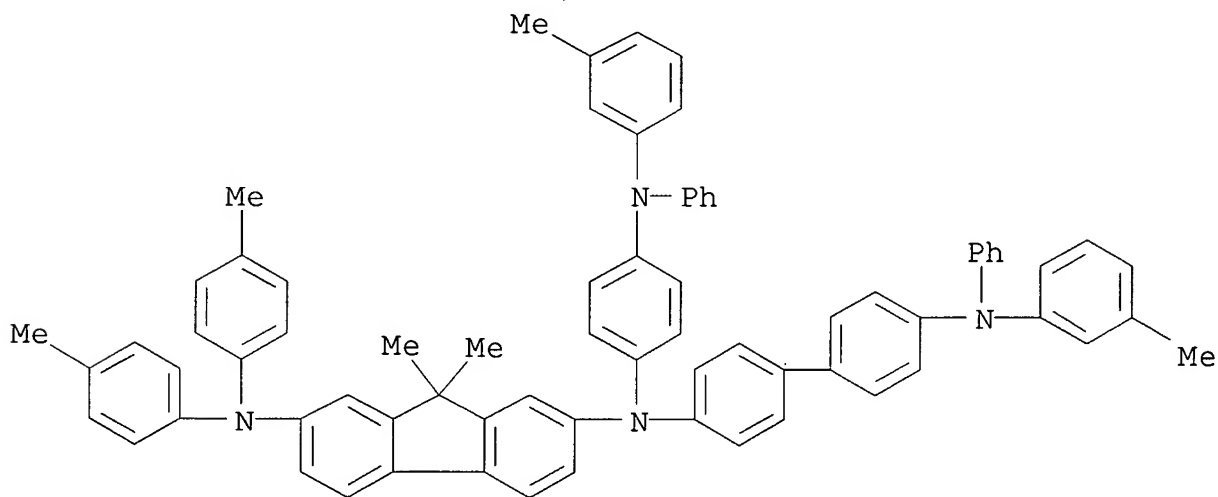
CN 9H-Fluorene-2,7-diamine, 9,9-dimethyl-N-(3-methylphenyl)-N'-[6-[(3-methylphenyl)phenylamino]-2-naphthalenyl]-N'-[4-[(3-methylphenyl)phenylamino]phenyl]-N-phenyl- (9CI) (CA INDEX NAME)





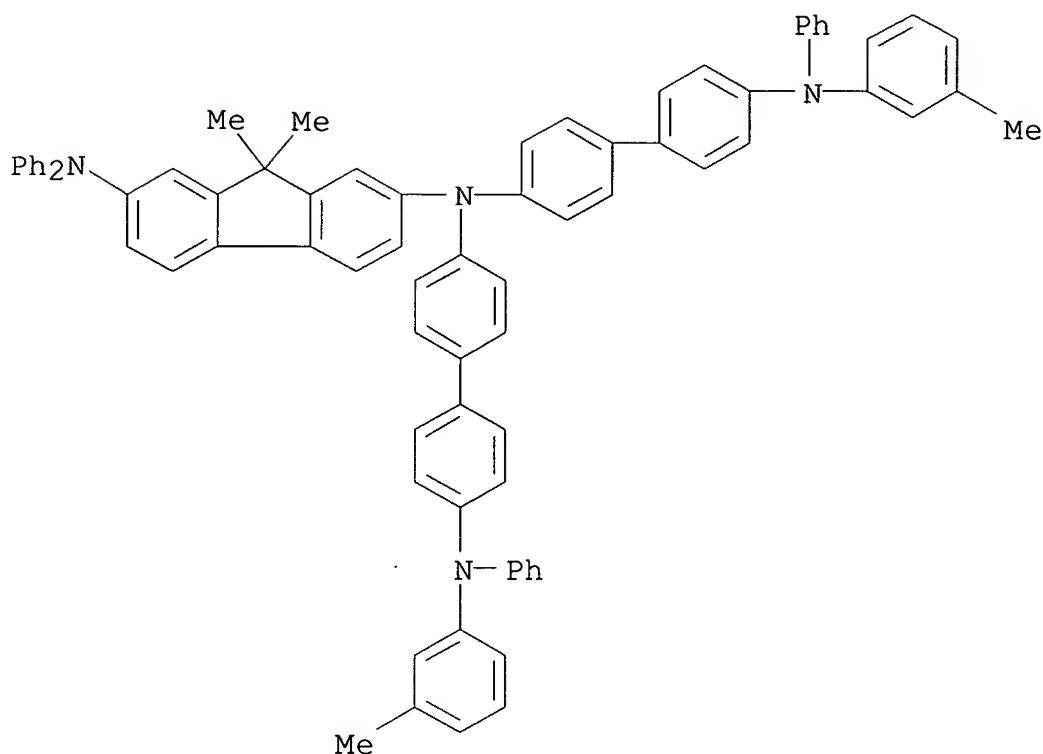
RN 228706-73-8 CAPLUS

CN 9H-Fluorene-2,7-diamine, 9,9-dimethyl-N,N-bis(4-methylphenyl)-N'-[4'-[(3-methylphenyl)phenylamino][1,1'-biphenyl]-4-yl]-N'-[4-[(3-methylphenyl)phenylamino]phenyl]- (9CI) (CA INDEX NAME)



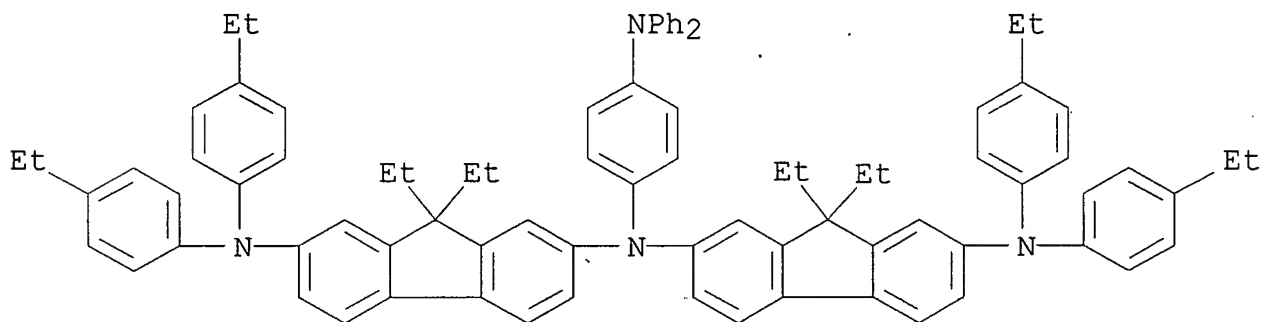
RN 228706-79-4 CAPLUS

CN 9H-Fluorene-2,7-diamine, 9,9-dimethyl-N,N-bis[4'-[(3-methylphenyl)phenylamino][1,1'-biphenyl]-4-yl]-N',N'-diphenyl- (9CI) (CA INDEX NAME)



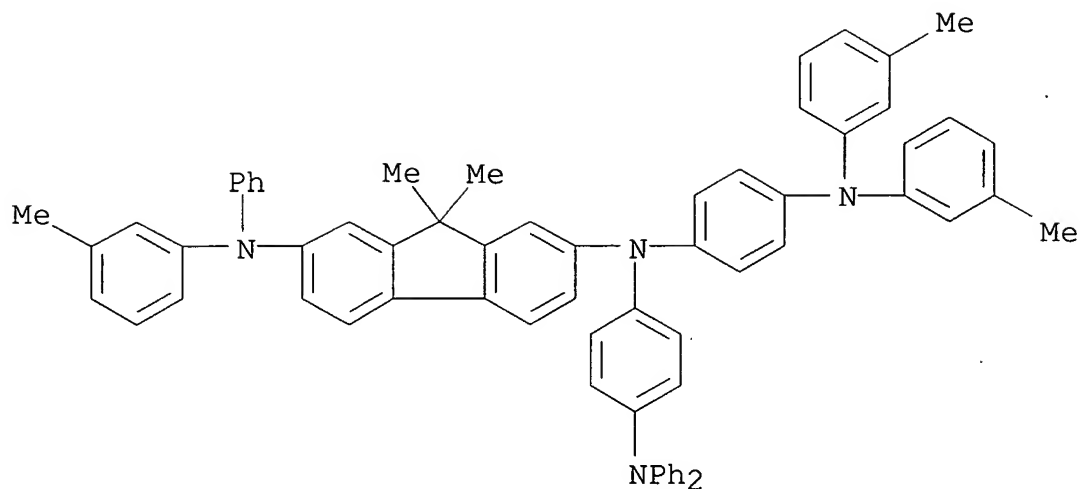
RN 228706-84-1 CAPLUS

CN 9H-Fluorene-2,7-diamine, N-[7-[bis(4-ethylphenyl)amino]-9,9-diethyl-9H-fluorene-2-yl]-N-[4-(diphenylamino)phenyl]-9,9-diethyl-N',N'-bis(4-ethylphenyl)- (9CI) (CA INDEX NAME)



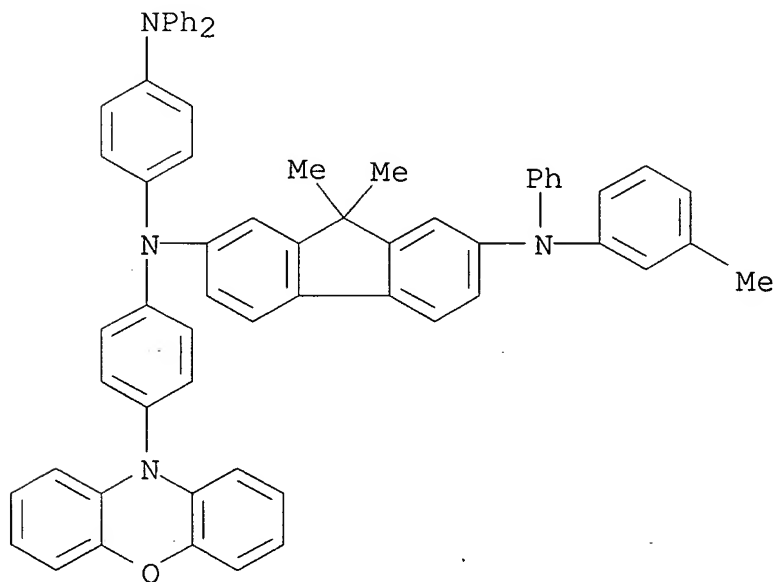
RN 309715-70-6 CAPLUS

CN 9H-Fluorene-2,7-diamine, N-[4-[bis(3-methylphenyl)amino]phenyl]-N-[4-(diphenylamino)phenyl]-9,9-dimethyl-N'-(3-methylphenyl)-N'-phenyl- (9CI) (CA INDEX NAME)



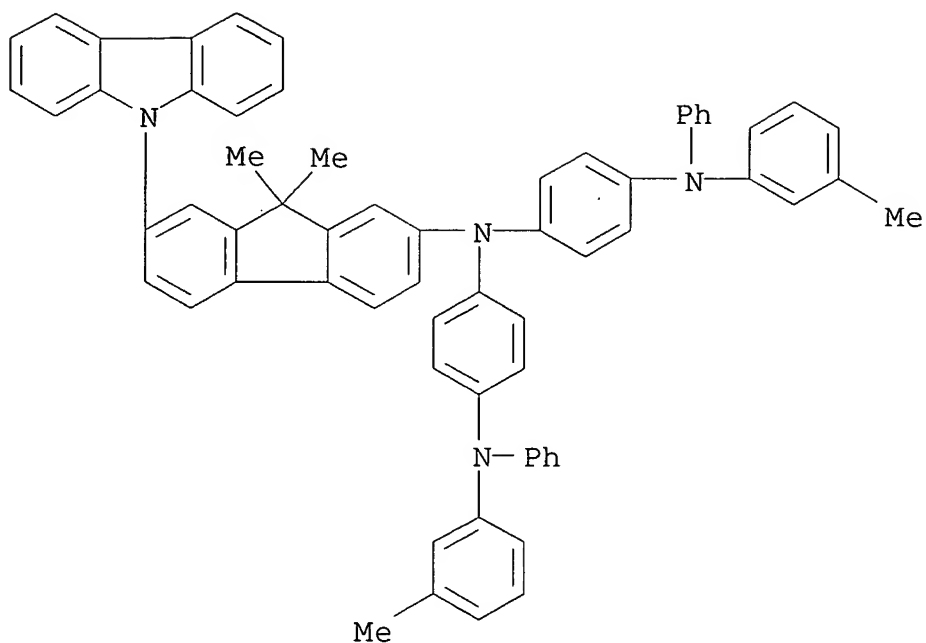
RN 309715-71-7 CAPLUS

CN 9H-Fluorene-2,7-diamine, N-[4-(diphenylamino)phenyl]-9,9-dimethyl-N'-(3-methylphenyl)-N-[4-(10H-phenoxazin-10-yl)phenyl]-N'-phenyl-(9CI) (CA INDEX NAME)



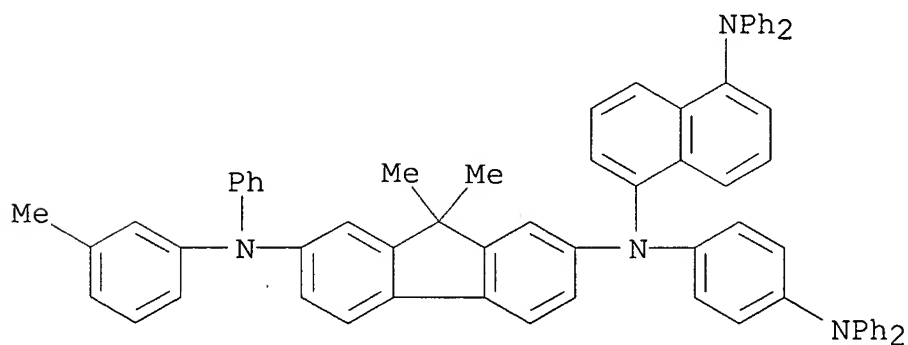
RN 309715-73-9 CAPLUS

CN 1,4-Benzenediamine, N-[7-(9H-carbazol-9-yl)-9,9-dimethyl-9H-fluorene-2-yl]-N'-(3-methylphenyl)-N-[4-[(3-methylphenyl)phenylamino]phenyl]-N'-phenyl- (9CI) (CA INDEX NAME)



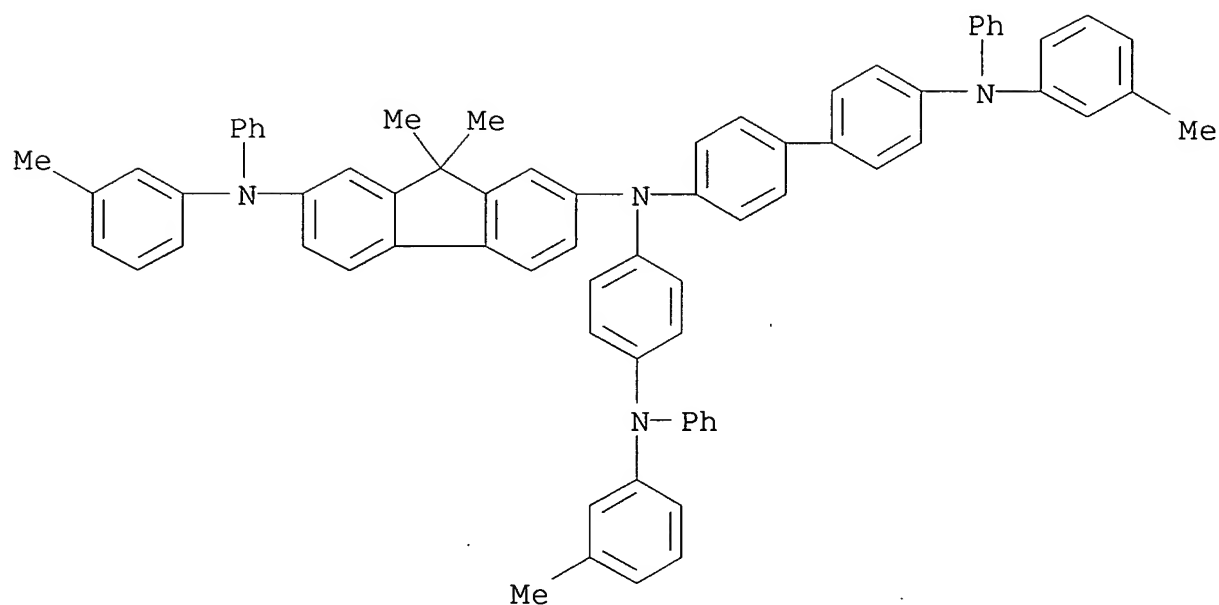
RN 309715-76-2 CAPLUS

CN 9H-Fluorene-2,7-diamine, N-[5-(diphenylamino)-1-naphthalenyl]-N-[4-(diphenylamino)phenyl]-9,9-dimethyl-N'-(3-methylphenyl)-N'-phenyl-(9CI) (CA INDEX NAME)



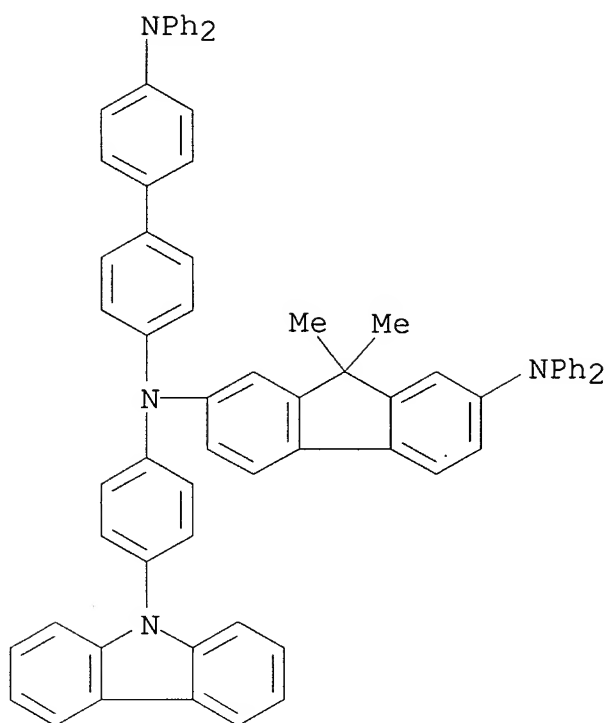
RN 309715-79-5 CAPLUS

CN 9H-Fluorene-2,7-diamine, 9,9-dimethyl-N-(3-methylphenyl)-N'-[4'-[(3-methylphenyl)phenylamino][1,1'-biphenyl]-4-yl]-N'-[4-[(3-methylphenyl)phenylamino]phenyl]-N-phenyl- (9CI) (CA INDEX NAME)



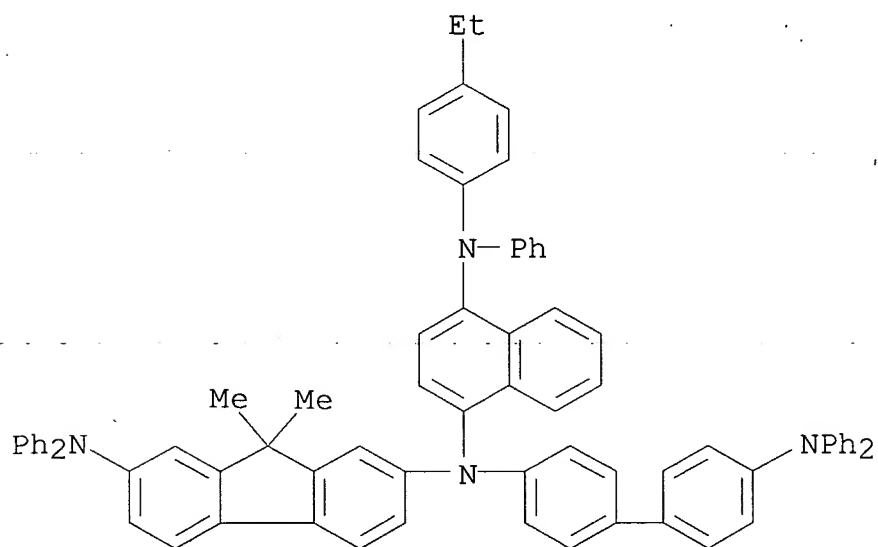
RN 309715-82-0 CAPLUS

CN 9H-Fluorene-2,7-diamine, N-[4-(9H-carbazol-9-yl)phenyl]-N-[4'-(diphenylamino)[1,1'-biphenyl]-4-yl]-9,9-dimethyl-N',N'-diphenyl-  
(9CI) (CA INDEX NAME)

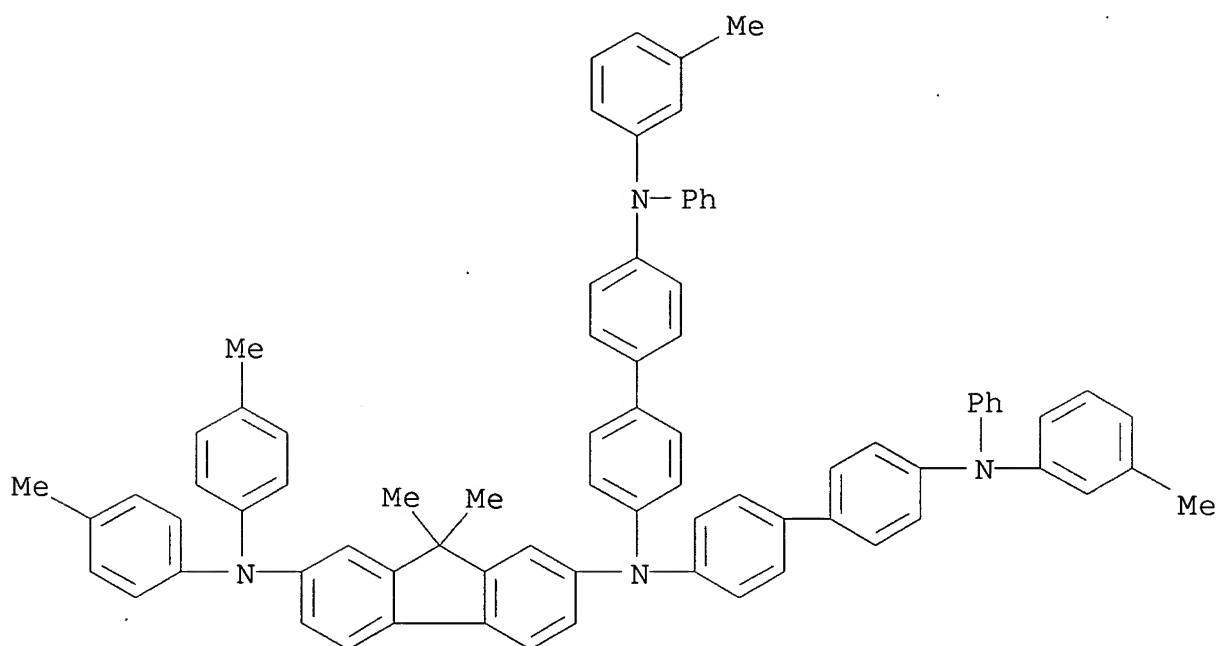


RN 309715-84-2 CAPLUS

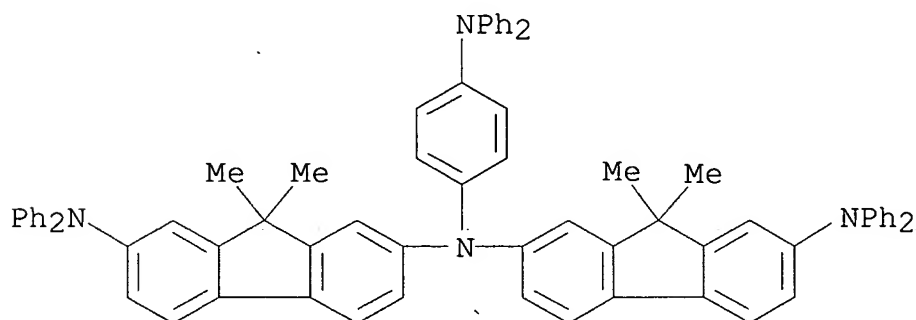
CN 9H-Fluorene-2,7-diamine, N-[4'-(diphenylamino)[1,1'-biphenyl]-4-yl]-N-[4-[(4-ethylphenyl)phenylamino]-1-naphthalenyl]-9,9-dimethyl-N',N'-diphenyl- (9CI) (CA INDEX NAME)



RN 309715-87-5 CAPLUS  
 CN 9H-Fluorene-2,7-diamine, 9,9-dimethyl-N,N-bis(4-methylphenyl)-N',N'-bis[4'-[(3-methylphenyl)phenylamino][1,1'-biphenyl]-4-yl]-(9CI) (CA INDEX NAME)

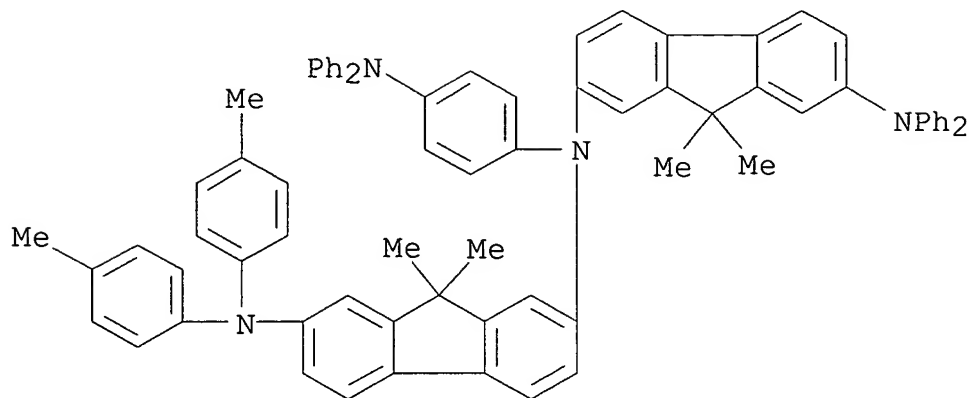


RN 309715-89-7 CAPLUS  
 CN 9H-Fluorene-2,7-diamine, N-[2-(diphenylamino)-9,9-dimethyl-9H-fluoren-7-yl]-N-[4-(diphenylamino)phenyl]-9,9-dimethyl-N',N'-diphenyl- (9CI) (CA INDEX NAME)



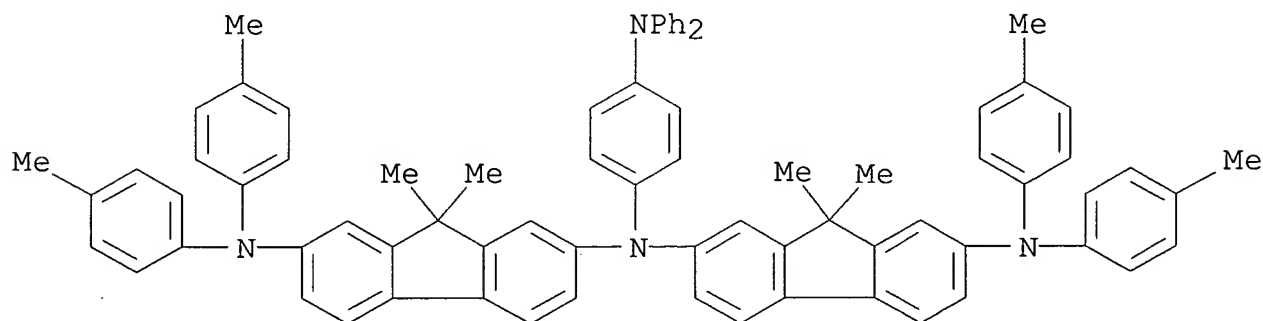
RN 309715-91-1 CAPLUS  
 CN 9H-Fluorene-2,7-diamine, N-[7-[bis(4-methylphenyl)amino]-9,9-dimethyl-9H-fluoren-2-yl]-N-[4-(diphenylamino)phenyl]-9,9-dimethyl-

N',N'-diphenyl- (9CI) (CA INDEX NAME)



RN 309715-93-3 CAPLUS

CN 9H-Fluorene-2,7-diamine, N-[2-[bis(4-methylphenyl)amino]-9,9-dimethyl-9H-fluoren-7-yl]-N-[4-(diphenylamino)phenyl]-9,9-dimethyl-N',N'-bis(4-methylphenyl)- (9CI) (CA INDEX NAME)

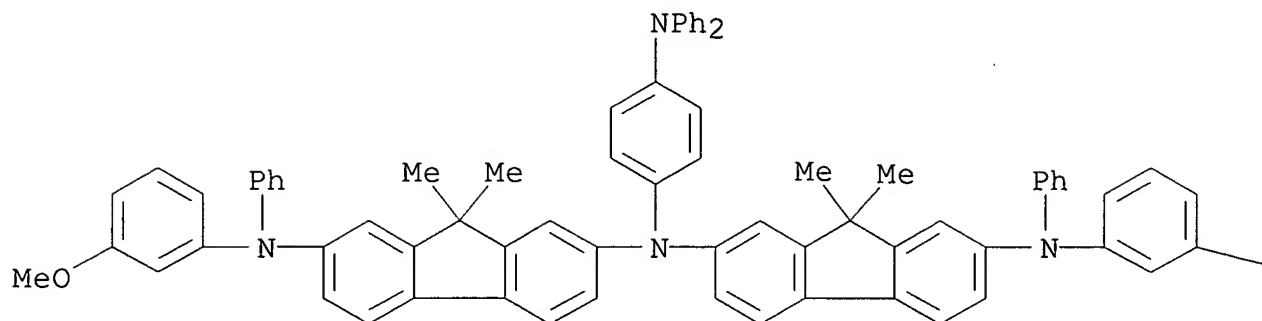


RN 309715-95-5 CAPLUS

CN 9H-Fluorene-2,7-diamine, N-[4-(diphenylamino)phenyl]-N'-(3-methoxyphenyl)-N-[2-[(3-methoxyphenyl)phenylamino]-9,9-dimethyl-9H-fluoren-7-yl]-9,9-dimethyl-N'-phenyl- (9CI) (CA INDEX NAME)



PAGE 1-A

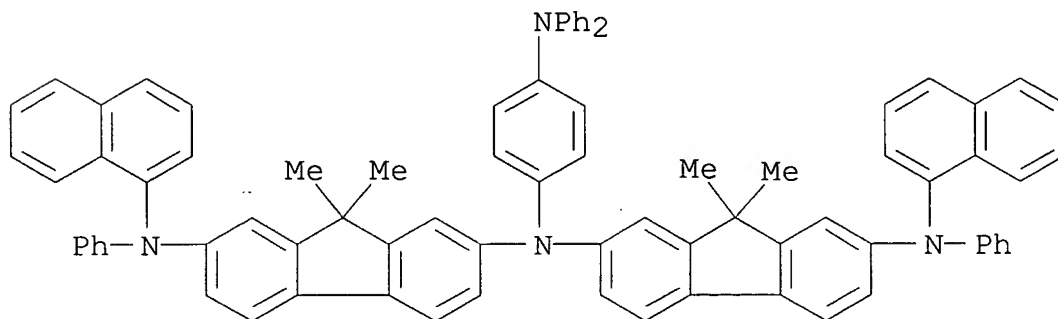


PAGE 1-B

— OMe

RN 309715-97-7 CAPLUS

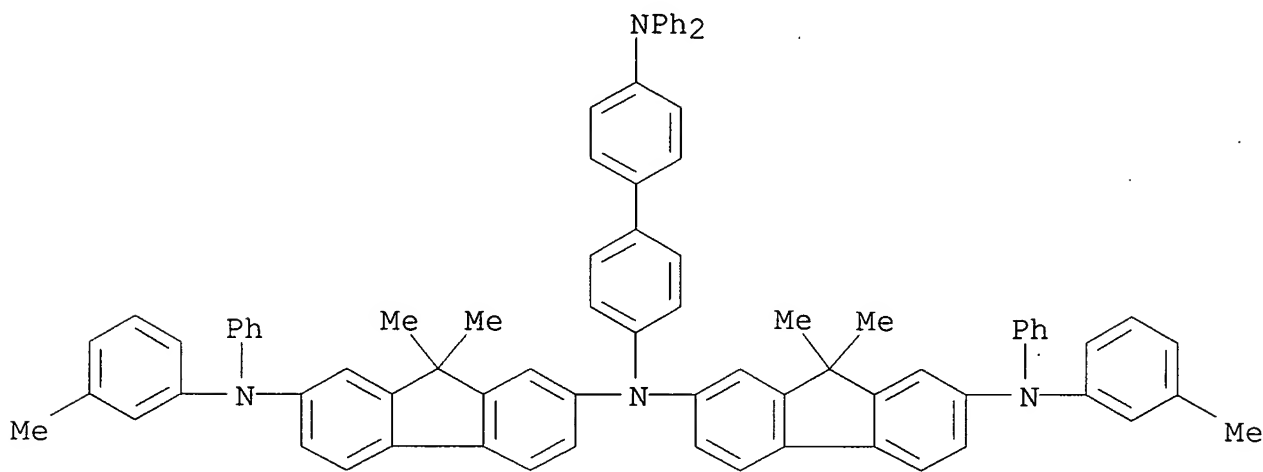
CN 9H-Fluorene-2,7-diamine, N-[9,9-dimethyl-2-(1-naphthalenylphenylamino)-9H-fluoren-7-yl]-N-[4-(diphenylamino)phenyl]-9,9-dimethyl-N'-1-naphthalenyl-N'-phenyl-(9CI) (CA INDEX NAME)



RN 309715-98-8 CAPLUS

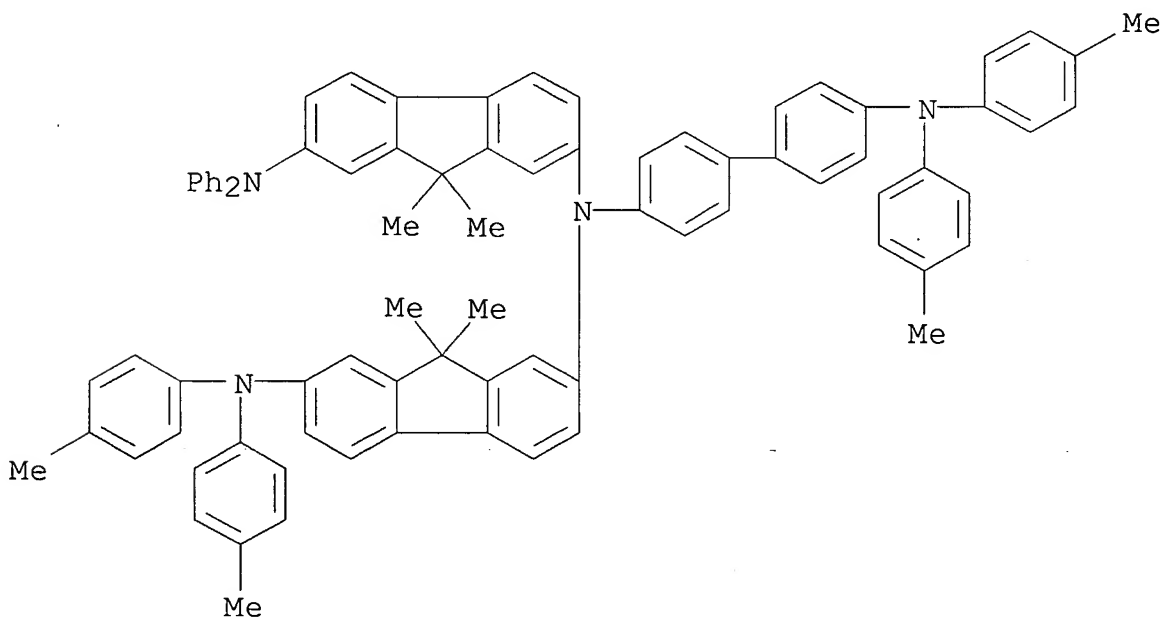
CN 9H-Fluorene-2,7-diamine, N-[9,9-dimethyl-2-[(3-

methylphenyl)phenylamino]-9H-fluoren-7-yl]-N-[4'-(diphenylamino)[1,1'-biphenyl]-4-yl]-9,9-dimethyl-N'-(3-methylphenyl)-N'-phenyl- (9CI) (CA INDEX NAME)



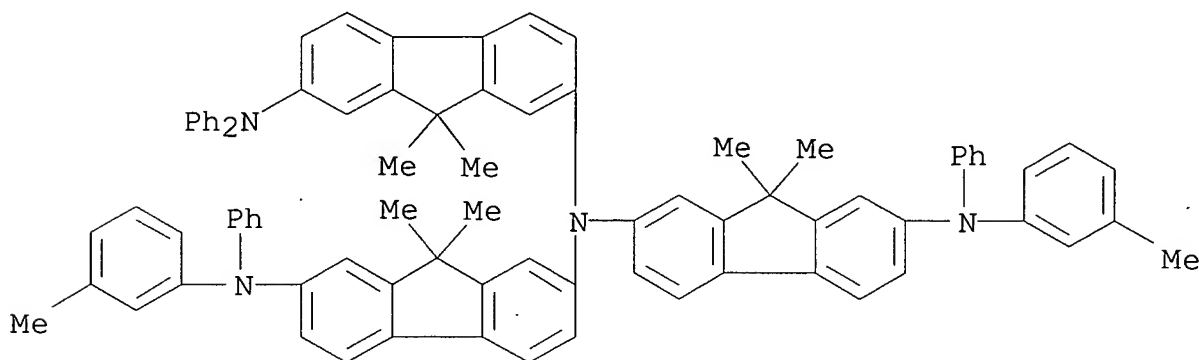
RN 309716-00-5 CAPLUS

CN 9H-Fluorene-2,7-diamine, N-[4'-[bis(4-methylphenyl)amino][1,1'-biphenyl]-4-yl]-N-[7-[bis(4-methylphenyl)amino]-9,9-dimethyl-9H-fluoren-2-yl]-9,9-dimethyl-N',N'-diphenyl- (9CI) (CA INDEX NAME)



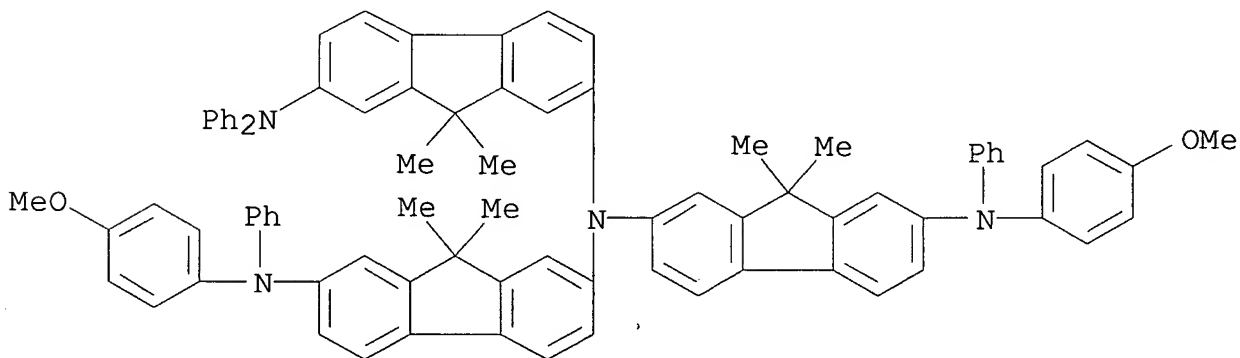
RN 309716-02-7 CAPLUS

CN 9H-Fluorene-2,7-diamine, N-[9,9-dimethyl-2-[(3-methylphenyl)phenylamino]-9H-fluoren-7-yl]-N-[9,9-dimethyl-7-[(3-methylphenyl)phenylamino]-9H-fluoren-2-yl]-9,9-dimethyl-N',N'-diphenyl- (9CI) (CA INDEX NAME)



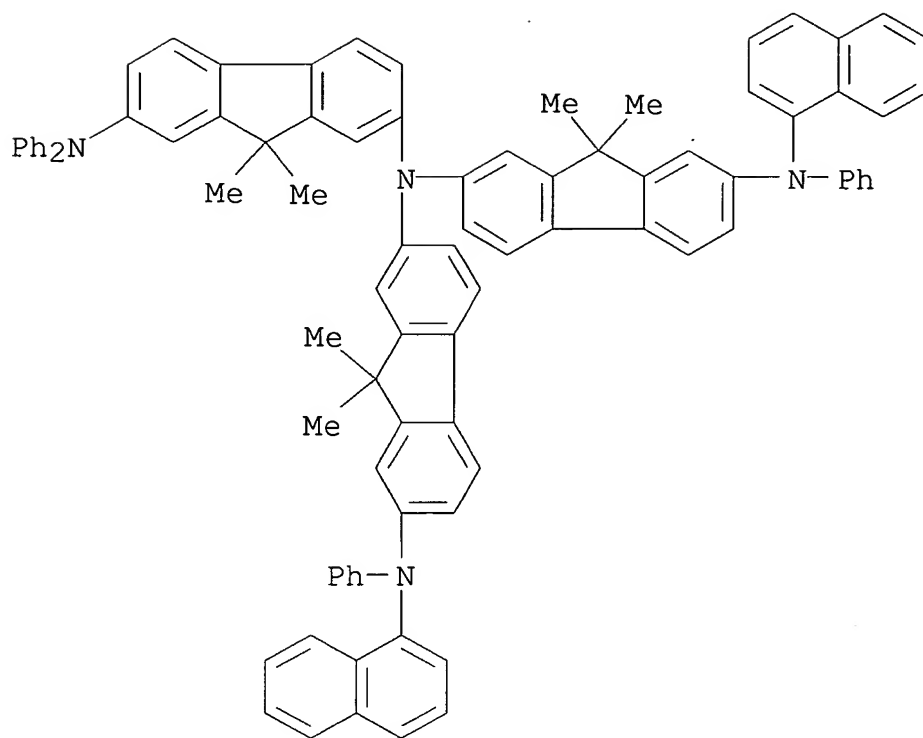
RN 309716-04-9 CAPLUS

CN 9H-Fluorene-2,7-diamine, N-[7-(diphenylamino)-9,9-dimethyl-9H-fluoren-2-yl]-N'-(4-methoxyphenyl)-N-[7-[(4-methoxyphenyl)phenylamino]-9,9-dimethyl-9H-fluoren-2-yl]-9,9-dimethyl-N'-phenyl- (9CI) (CA INDEX NAME)



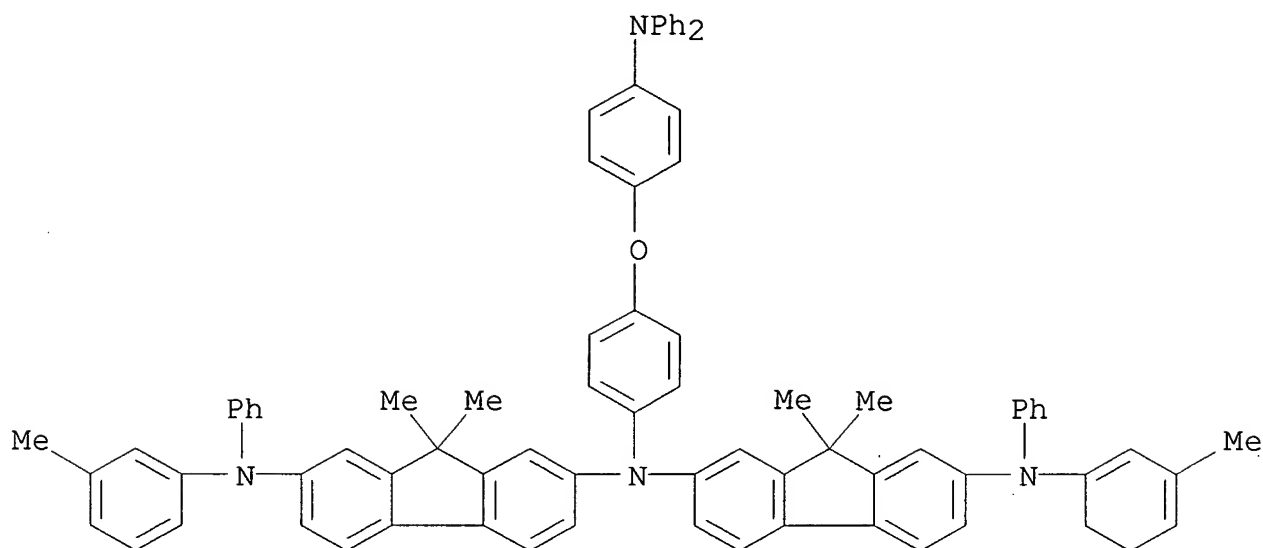
RN 309716-06-1 CAPLUS

CN 9H-Fluorene-2,7-diamine, N-[9,9-dimethyl-2-(1-naphthalenylphenylamino)-9H-fluoren-7-yl]-N-[9,9-dimethyl-7-(1-naphthalenylphenylamino)-9H-fluoren-2-yl]-9,9-dimethyl-N',N'-diphenyl- (9CI) (CA INDEX NAME)

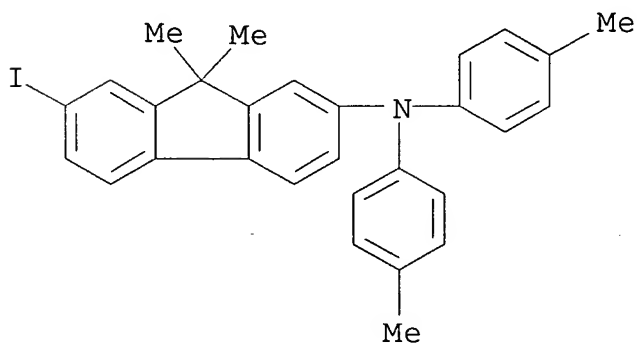


RN 309716-08-3 CAPLUS

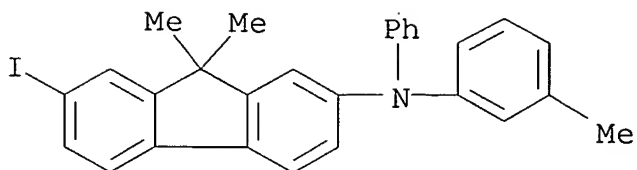
CN 9H-Fluorene-2,7-diamine, N-[9,9-dimethyl-7-[(3-methyl-1,3-cyclohexadien-1-yl)phenylamino]-9H-fluoren-2-yl]-N-[4-[4-(diphenylamino)phenoxy]phenyl]-9,9-dimethyl-N'-(3-methylphenyl)-N'-phenyl- (9CI) (CA INDEX NAME)



IT 280113-41-9 308144-55-0 308144-57-2  
 308144-59-4 308144-61-8 308144-63-0,  
 2-(N,N-Diphenylamino)-9,9-dimethyl-9H-7-iodofluorene  
 308814-66-6 309715-52-4 309715-55-7  
 309715-58-0 309715-60-4 309715-62-6  
 309715-64-8  
 (preparation of (diarylamino)[((arylamino)aryl)amino]fluorene  
 derivs. as hole transport materials for organic electroluminescent  
 devices)  
 RN 280113-41-9 CAPLUS  
 CN 9H-Fluoren-2-amine, 7-iodo-9,9-dimethyl-N,N-bis(4-methylphenyl)-  
 (9CI) (CA INDEX NAME)

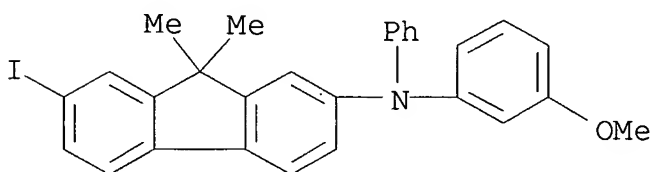


RN 308144-55-0 CAPLUS  
 CN 9H-Fluoren-2-amine, 7-iodo-9,9-dimethyl-N-(3-methylphenyl)-N-  
 phenyl- (9CI) (CA INDEX NAME)



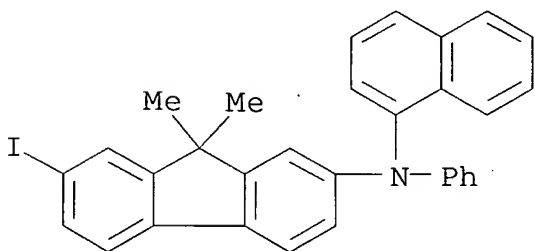
RN 308144-57-2 CAPLUS

CN 9H-Fluoren-2-amine, 7-iodo-N-(3-methoxyphenyl)-9,9-dimethyl-N-phenyl- (9CI) (CA INDEX NAME)



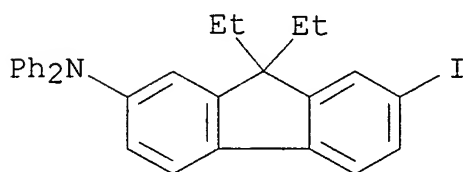
RN 308144-59-4 CAPLUS

CN 9H-Fluoren-2-amine, 7-iodo-9,9-dimethyl-N-1-naphthalenyl-N-phenyl- (9CI) (CA INDEX NAME)

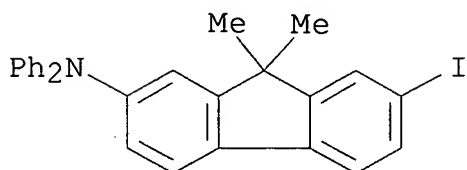


RN 308144-61-8 CAPLUS

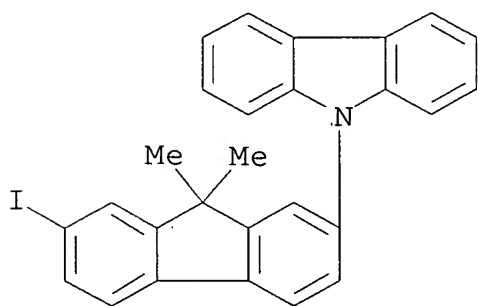
CN 9H-Fluoren-2-amine, 9,9-diethyl-7-iodo-N,N-diphenyl- (9CI) (CA INDEX NAME)



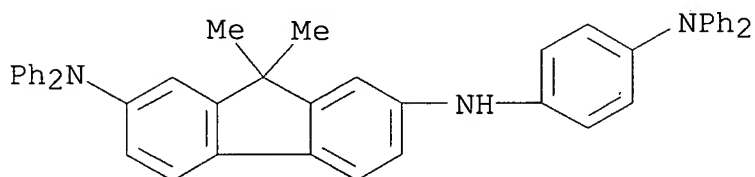
RN 308144-63-0 CAPLUS  
 CN 9H-Fluoren-2-amine, 7-iodo-9,9-dimethyl-N,N-diphenyl- (9CI) (CA INDEX NAME)



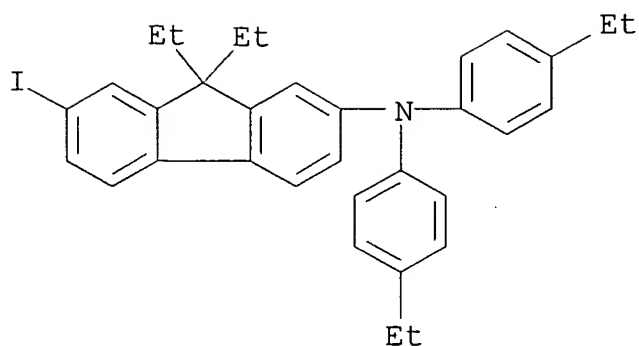
RN 308814-66-6 CAPLUS  
 CN 9H-Carbazole, 9-(7-iodo-9,9-dimethyl-9H-fluoren-2-yl)- (9CI) (CA INDEX NAME)



RN 309715-52-4 CAPLUS  
 CN 9H-Fluorene-2,7-diamine, N'-[4-(diphenylamino)phenyl]-9,9-dimethyl-N,N-diphenyl- (9CI) (CA INDEX NAME)

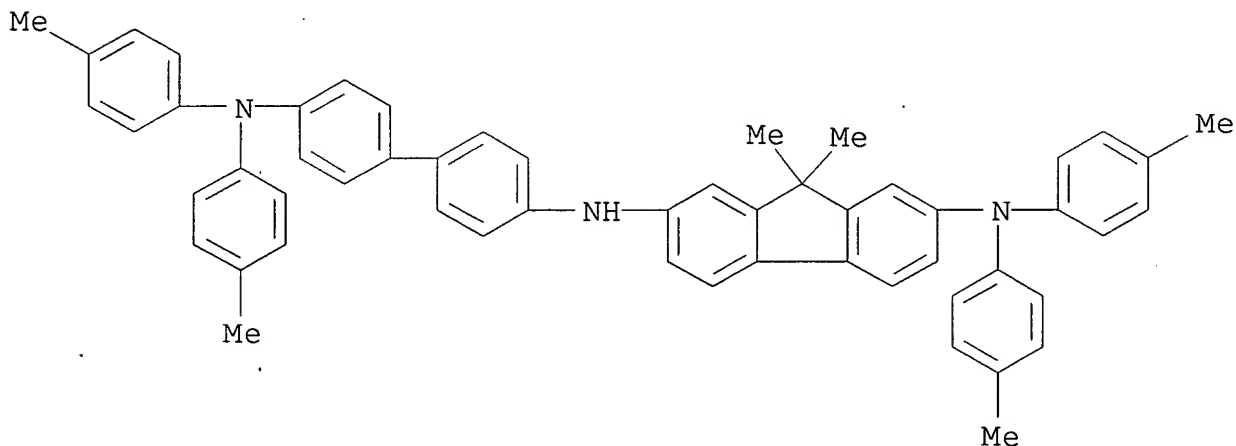


RN 309715-55-7 CAPLUS  
 CN 9H-Fluoren-2-amine, 9,9-diethyl-N,N-bis(4-ethylphenyl)-7-iodo- (9CI) (CA INDEX NAME)



RN 309715-58-0 CAPLUS

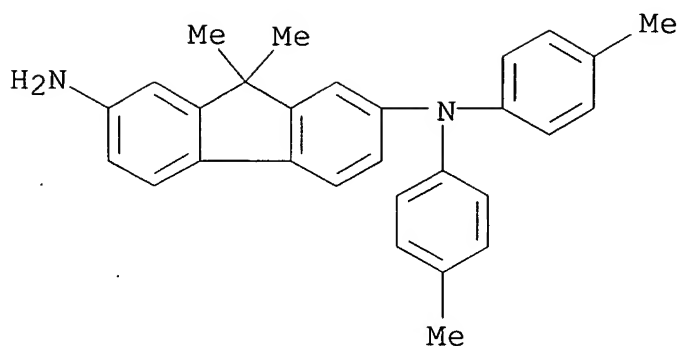
CN 9H-Fluorene-2,7-diamine, N'-[4'-[bis(4-methylphenyl)amino][1,1'-biphenyl]-4-yl]-9,9-dimethyl-N,N-bis(4-methylphenyl)- (9CI) (CA INDEX NAME)



RN 309715-60-4 CAPLUS

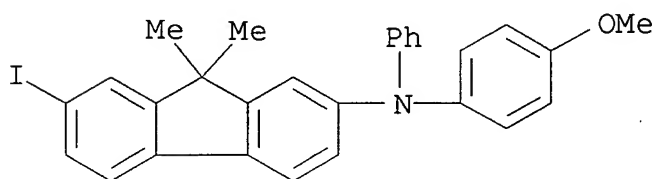
CN 9H-Fluorene-2,7-diamine, 9,9-dimethyl-N,N-bis(4-methylphenyl)- (9CI) (CA INDEX NAME)





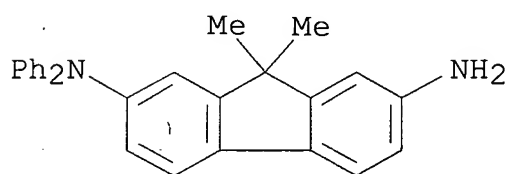
RN 309715-62-6 CAPLUS

CN 9H-Fluorene-2-amine, 7-iodo-N-(4-methoxyphenyl)-9,9-dimethyl-N-phenyl- (9CI) (CA INDEX NAME)



RN 309715-64-8 CAPLUS

CN 9H-Fluorene-2,7-diamine, 9,9-dimethyl-N,N-diphenyl- (9CI) (CA INDEX NAME)



IC ICM C07C211-61

ICS C07C217-92; C07C323-37; C07D209-86; C07D265-38; C07D333-36

CC 73-5 (Optical, Electron, and Mass Spectroscopy and Other Related Properties)

IT 228706-59-0P 228706-60-3P 228706-63-6P

228706-66-9P 228706-68-1P 228706-73-8P

228706-79-4P 228706-84-1P 309715-70-6P

309715-71-7P 309715-73-9P 309715-76-2P

309715-79-5P 309715-82-0P 309715-84-2P

309715-87-5P 309715-89-7P 309715-91-1P

309715-93-3P 309715-95-5P 309715-97-7P

309715-98-8P 309716-00-5P 309716-02-7P

309716-04-9P 309716-06-1P 309716-08-3P

(preparation of (diarylamino)[((arylamino)aryl)amino]fluorene  
derivs. as hole transport materials for organic electroluminescent  
devices)

IT 2350-01-8, 4-(N,N-Diphenylamino)aniline 29344-76-1,  
N,N-Di[4-(N,N-diphenylamino)phenyl]amine 84161-87-5  
198026-05-0 207447-39-0 280113-41-9  
308144-55-0 308144-57-2 308144-59-4  
308144-61-8 308144-63-0, 2-(N,N-Diphenylamino)-  
9,9-dimethyl-9H-7-iodofluorene 308814-66-6 309715-32-0  
309715-34-2 309715-36-4 309715-40-0 309715-42-2  
309715-44-4 309715-46-6 309715-49-9 309715-50-2  
309715-52-4 309715-55-7 309715-58-0  
309715-60-4 309715-62-6 309715-64-8  
309715-66-0

(preparation of (diarylamino)[((arylamino)aryl)amino]fluorene  
derivs. as hole transport materials for organic electroluminescent  
devices)

L40 ANSWER 54 OF 65 CAPLUS COPYRIGHT 2005 ACS on STN

ACCESSION NUMBER: 2000:384657 CAPLUS

DOCUMENT NUMBER: 133:35947

TITLE: OLEDs containing thermally stable glassy  
organic hole transporting materials

INVENTOR(S): Thompson, Mark E.; Loy, Douglas E.; Koene,  
Bryan E.; O'brien, Diarmuid; Forrest, Stephen  
R.

PATENT ASSIGNEE(S): The Trustees of Princeton University, USA; The  
University of Southern California

SOURCE: PCT Int. Appl., 51 pp.

CODEN: PIXXD2

DOCUMENT TYPE: Patent

LANGUAGE: English

FAMILY ACC. NUM. COUNT: 4

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO-2000033617	A1	20000608	WO 1999-US28500	1999 1202

W: AE, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN,  
CR, CU, CZ, DE, DK, DM, EE, ES, FI, GB, GD, GE, GH, GM,  
HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK,  
LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, NO, NZ,  
PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT,

TZ, UA, UG, UZ, VN, YU, ZA, ZW, AM, AZ, BY, KG, KZ, MD,  
RU, TJ, TM  
RW: GH, GM, KE, LS, MW, SD, SL, SZ, TZ, UG, ZW, AT, BE, CH,  
CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT,  
SE, BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN,  
TD, TG

US 6387544

B1

20020514

US 1998-204386

1998

1202

PRIORITY APPLN. INFO.:

US 1998-204386

A

1998

1202

US 1998-58305

A2

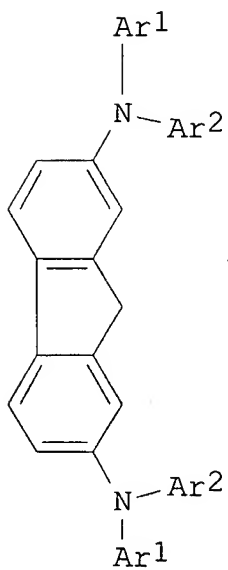
1998

0410

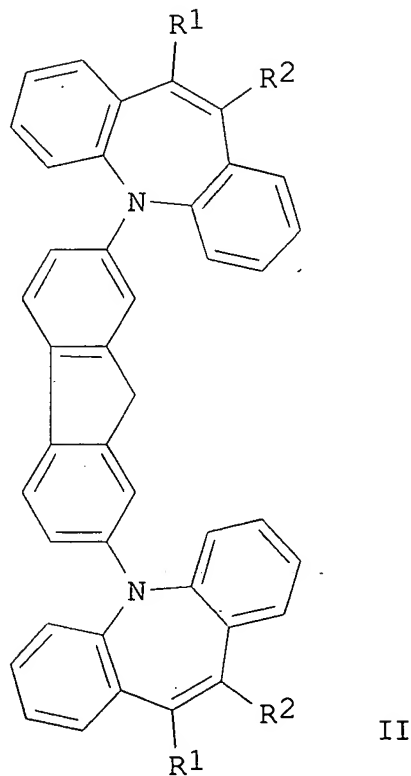
OTHER SOURCE(S):

MARPAT 133:35947

GI



I



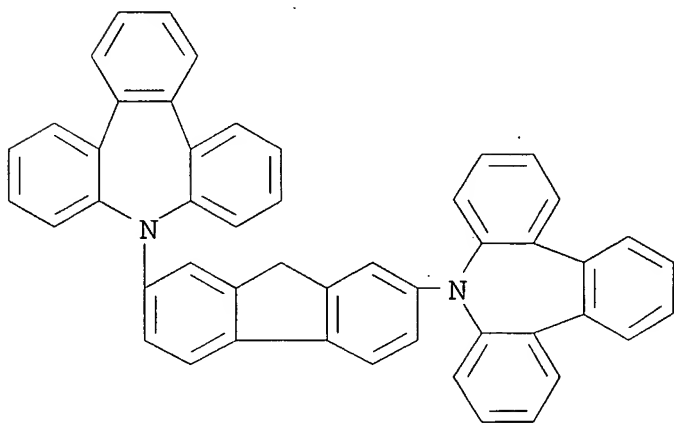
II

AB Organic **light-emitting** devices comprising a heterostructure for producing electroluminescence are described in which the heterostructure includes a hole-transporting **layer** having a glass structure which comprises compds. which are described by the general formulas I or II (Ar1 and Ar2 = (un)substituted arene moieties. with the proviso that Ar1 and Ar2 are different; R1 and R2 = independently selected hydrogen, (un)substituted alkyl, or (un)substituted Ph groups; and R1 and R2 may be bridged). The devices may be used in a variety of types of displays. The compds. are also claimed.

IT **273381-60-5 273381-62-7 273381-63-8**  
(thermally stable glassy hole transporting materials based on fluorene derivs. and electroluminescent devices using them)

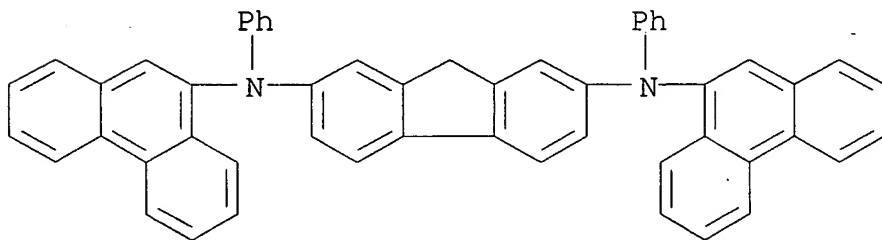
RN 273381-60-5 CAPLUS

CN 9H-Tribenz[b,d,f]azepine, 9,9'-(9H-fluorene-2,7-diyl)bis- (9CI)  
(CA INDEX NAME)

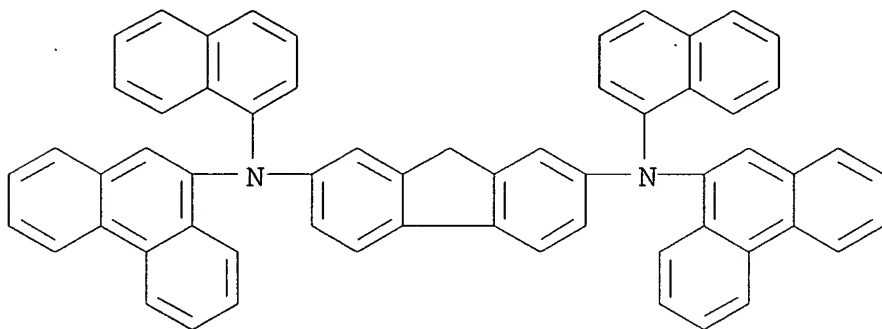


RN 273381-62-7 CAPLUS

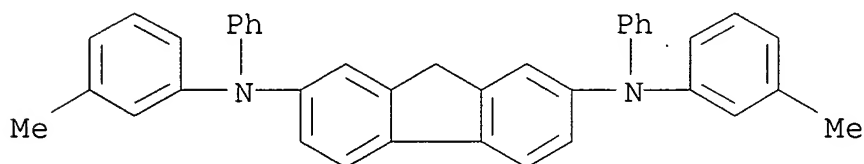
CN 9H-Fluorene-2,7-diamine, N,N'-di-9-phenanthrenyl-N,N'-diphenyl- (9CI)  
(CA INDEX NAME)



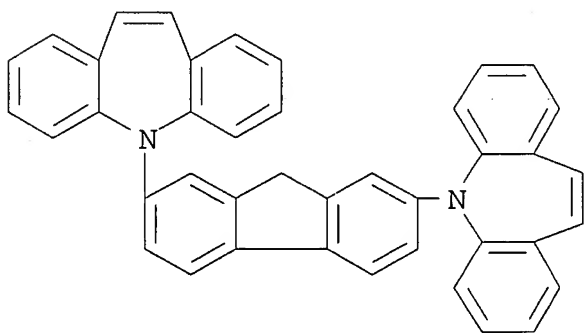
RN 273381-63-8 CAPLUS  
 CN 9H-Fluorene-2,7-diamine, N,N'-di-1-naphthalenyl-N,N'-di-9-phenanthrenyl- (9CI) (CA INDEX NAME)



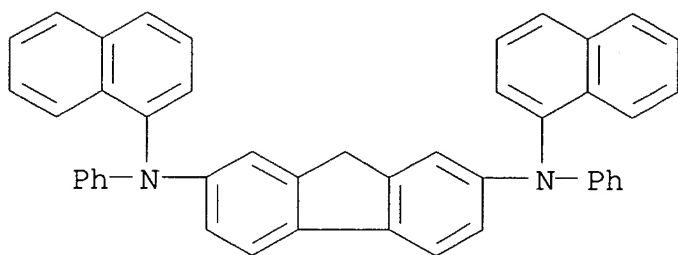
IT 142517-32-6P 273381-59-2P 273381-61-6P  
 (thermally stable glassy hole transporting materials based on fluorene derivs. and electroluminescent devices using them)  
 RN 142517-32-6 CAPLUS  
 CN 9H-Fluorene-2,7-diamine, N,N'-bis(3-methylphenyl)-N,N'-diphenyl- (9CI) (CA INDEX NAME)



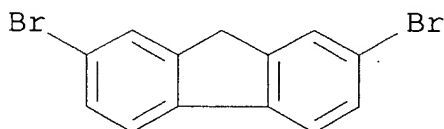
RN 273381-59-2 CAPLUS  
 CN 5H-Dibenz[b,f]azepine, 5,5'-(9H-fluorene-2,7-diyl)bis- (9CI) (CA INDEX NAME)



RN 273381-61-6 CAPLUS  
 CN 9H-Fluorene-2,7-diamine, N,N'-di-1-naphthalenyl-N,N'-diphenyl-  
 (9CI) (CA INDEX NAME)



IT 16433-88-8, 2,7-Dibromofluorene  
 (thermally stable glassy hole transporting materials based on  
 fluorene derivs. and electroluminescent devices using them)  
 RN 16433-88-8 CAPLUS  
 CN 9H-Fluorene, 2,7-dibromo- (9CI) (CA INDEX NAME)

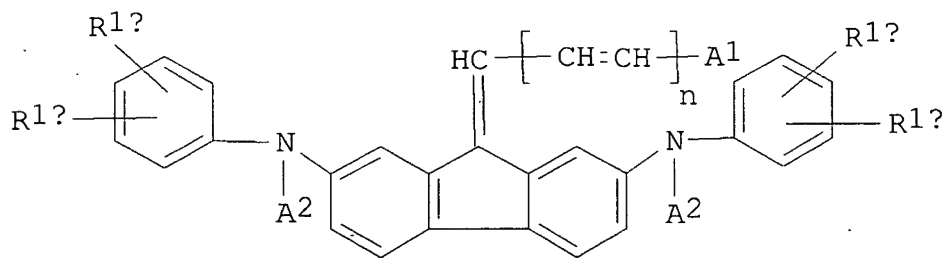


IC ICM H05B033-00  
 ICS H05B033-12; C07D223-14; C07C211-00  
 CC 73-11 (Optical, Electron, and Mass Spectroscopy and  
 Other Related Properties)  
 Section cross-reference(s): 74, 76  
 IT 147-14-8, Copper phthalocyanine 2085-33-8, Tris(8-  
 hydroxyquinolinato)aluminum 273381-60-5  
 273381-62-7 273381-63-8  
 (thermally stable glassy hole transporting materials based on  
 fluorene derivs. and electroluminescent devices using them)  
 IT 142517-32-6P 273381-59-2P 273381-61-6P  
 (thermally stable glassy hole transporting materials-based on  
 fluorene derivs. and electroluminescent devices using them)  
 IT 90-30-2, Phenyl-1-naphthyl amine 256-96-2, Iminostilbene  
 1205-64-7 16433-88-8, 2,7-Dibromofluorene  
 (thermally stable glassy hole transporting materials based on  
 fluorene derivs. and electroluminescent devices using them)  
 REFERENCE COUNT: 4 THERE ARE 4 CITED REFERENCES AVAILABLE  
 FOR THIS RECORD. ALL CITATIONS AVAILABLE

## IN THE RE FORMAT

L40 ANSWER 55 OF 65 CAPLUS COPYRIGHT 2005 ACS on STN  
 ACCESSION NUMBER: 2000:342606 CAPLUS  
 DOCUMENT NUMBER: 132:340981  
 TITLE: 2,7-Diamino-9-fluorenylidene derivatives and  
 organic electroluminescent devices  
 INVENTOR(S): Enomoto, Kazuhiro; Ogura, Takashi  
 PATENT ASSIGNEE(S): Sharp Corp., Japan  
 SOURCE: Jpn. Kokai Tokkyo Koho, 19 pp.  
 CODEN: JKXXAF  
 DOCUMENT TYPE: Patent  
 LANGUAGE: Japanese  
 FAMILY ACC. NUM. COUNT: 1  
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 2000143591	A2	20000523	JP 1998-325253	1998 1116
PRIORITY APPLN. INFO.:				JP 1998-325253 1998 1116
OTHER SOURCE(S):		MARPAT 132:340981		
GI				



I

AB 2,7-Diamino-9-fluorenylidene derivs. I [A1 = (un)substituted aryl, lower alkyl, heterocycle; A2 = H, (un)substituted aryl, lower alkyl, (un)substituted aralkyl; n = 0, 1; R1a, R1b = H, halo, (un)substituted aryl, lower alkyl, lower alkoxy; neighboring R1a and R1b may form O-containing 5- or 6-membered ring] are claimed.

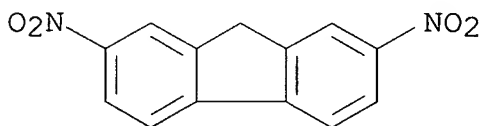
Further specification of the variables and Markush structures for electron barrier **layers** are also given. Organic electroluminescent device comprising of a hole-injection/transportation **layer** containing I, a **light-emitting layer**, a pair of electrodes, and a substrate is also claimed. The devices show high luminosity under low driving voltage.

IT 5405-53-8P, 2,7-Dinitrofluorene 65550-83-6P  
109805-03-0P

(diaminofluorenylidene derivs. and organic electroluminescent devices having low driving voltage)

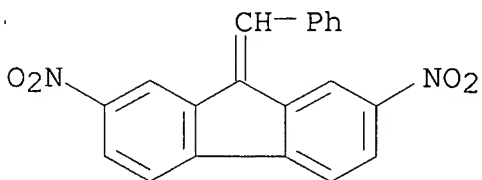
RN 5405-53-8 CAPLUS

CN 9H-Fluorene, 2,7-dinitro- (9CI) (CA INDEX NAME)



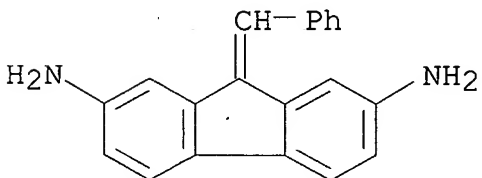
RN 65550-83-6 CAPLUS

CN 9H-Fluorene, 2,7-dinitro-9-(phenylmethylene)- (9CI) (CA INDEX NAME)



RN 109805-03-0 CAPLUS

CN 9H-Fluorene-2,7-diamine, 9-(phenylmethylene)- (9CI) (CA INDEX NAME)



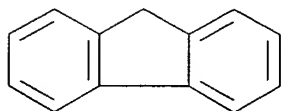
IT 86-73-7, Fluorene



(diaminofluorenylidene derivs. and organic electroluminescent devices having low driving voltage)

RN 86-73-7 CAPLUS

CN 9H-Fluorene (9CI) (CA INDEX NAME)



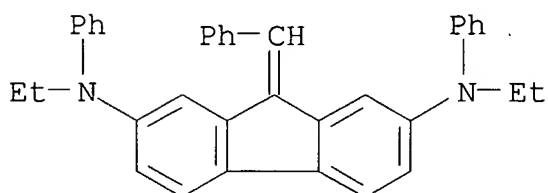
IT 267881-36-7 267881-37-8 267881-38-9

267881-39-0 267881-40-3

(electron barrier layers; diaminofluorenylidene derivs. and organic electroluminescent devices having low driving voltage)

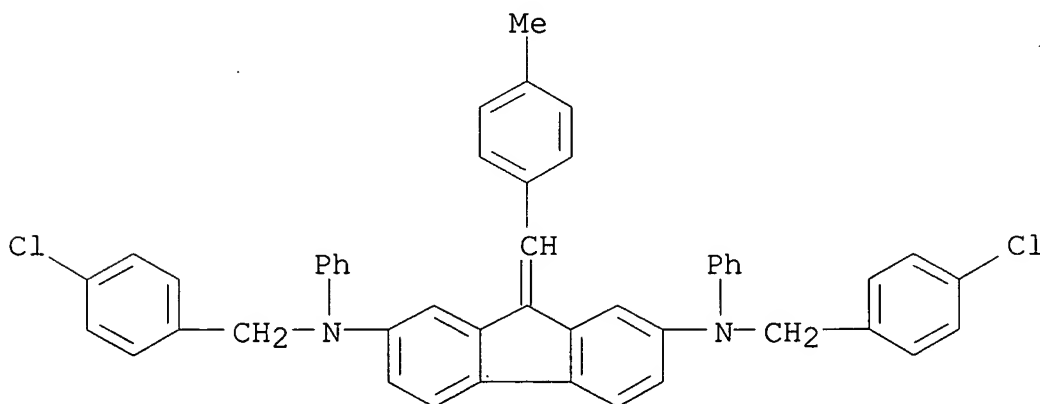
RN 267881-36-7 CAPLUS

CN 9H-Fluorene-2,7-diamine, N,N'-diethyl-N,N'-diphenyl-9-(phenylmethylene)- (9CI) (CA INDEX NAME)



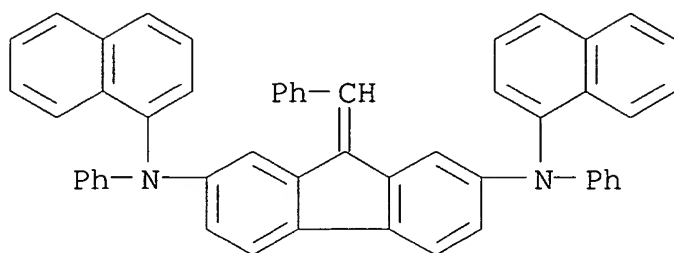
RN 267881-37-8 CAPLUS

CN 9H-Fluorene-2,7-diamine, N,N'-bis[(4-chlorophenyl)methyl]-9-[(4-methylphenyl)methylene]-N,N'-diphenyl- (9CI) (CA INDEX NAME)



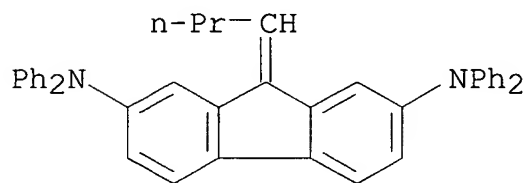
RN 267881-38-9 CAPLUS

CN 9H-Fluorene-2,7-diamine, N,N'-di-1-naphthalenyl-N,N'-diphenyl-9-(phenylmethylene)- (9CI) (CA INDEX NAME)



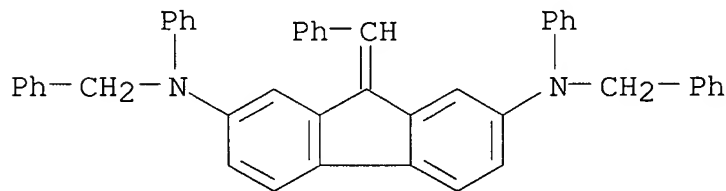
RN 267881-39-0 CAPLUS

CN 9H-Fluorene-2,7-diamine, 9-butyridene-N,N,N',N'-tetraphenyl- (9CI) (CA INDEX NAME)



RN 267881-40-3 CAPLUS

CN 9H-Fluorene-2,7-diamine, N,N'-diphenyl-N,N'-bis(phenylmethyl)-9-(phenylmethylene)- (9CI) (CA INDEX NAME)



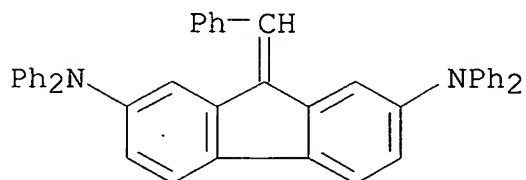
IT 267881-32-3P 267881-33-4P 267881-34-5P

267881-35-6P

(hole-injection/transportation layer;  
diaminofluorenylidene derivs. and organic electroluminescent  
devices having low driving voltage)

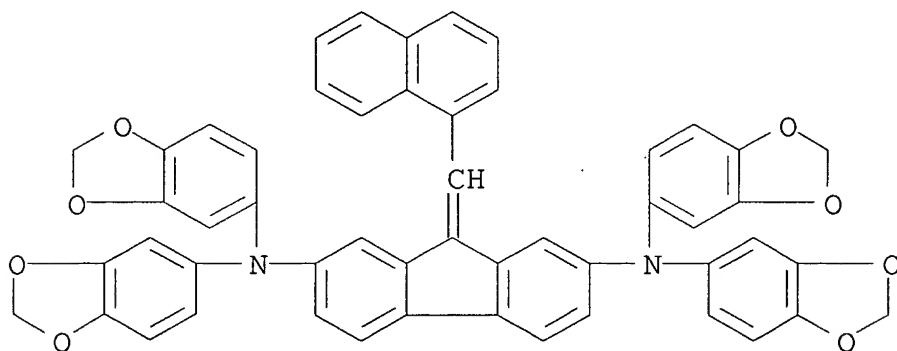
RN 267881-32-3 CAPLUS

\* CN 9H-Fluorene-2,7-diamine, N,N,N',N'-tetraphenyl-9-(phenylmethylene)-  
(9CI) (CA INDEX NAME)



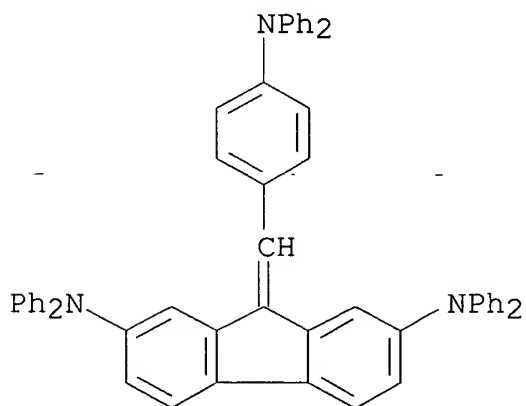
RN 267881-33-4 CAPLUS

CN 9H-Fluorene-2,7-diamine, N,N,N',N'-tetrakis(1,3-benzodioxol-5-yl)-  
9-(1-naphthalenylmethylene)- (9CI) (CA INDEX NAME)

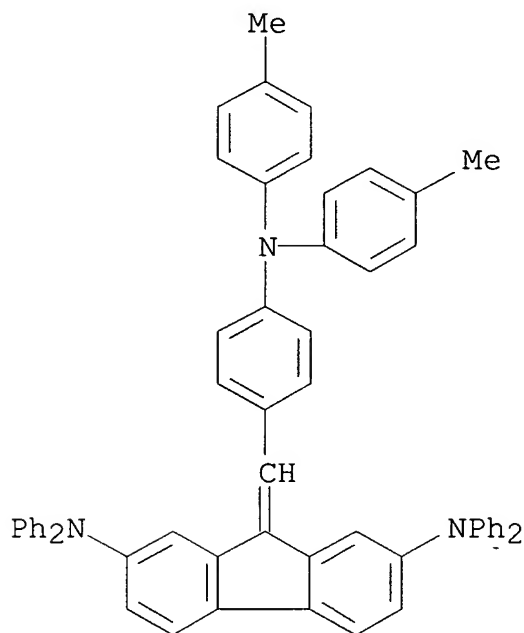


RN 267881-34-5 CAPLUS

CN 9H-Fluorene-2,7-diamine, 9-[[4-(diphenylamino)phenyl]methylene]-  
N,N,N',N'-tetraphenyl- (9CI) (CA INDEX NAME)



RN 267881-35-6 CAPLUS  
 CN 9H-Fluorene-2,7-diamine, 9-[[4-[bis(4-methylphenyl)amino]phenyl]methylene]-N,N,N',N'-tetraphenyl- (9CI)  
 (CA INDEX NAME)



IC ICM C07C211-61  
 ICS C07C217-92; C07D207-33; C07D209-86; C07D213-38; C07D215-12;  
 C07D307-52; C07D307-81; C07D333-20; C09K011-06; G03G005-06;  
 H05B033-14; H05B033-22  
 CC 73-11 (**Optical**, Electron, and Mass Spectroscopy and  
 Other Related Properties)  
 Section cross-reference(s): 25  
 ST aminofluorenylidene hole injection transportation **layer**  
 EL; EL device aminofluorenylidene deriv; electroluminescent device  
 aminofluorenylidene deriv; arom amine electron barrier EL device;  
 enamine arom electron barrier EL device  
 IT Amines, uses  
 Enamines  
 (aromatic, electron barrier **layers**;  
 diaminofluorenylidene derivs. and organic electroluminescent  
 devices having low driving voltage)  
 IT 5405-53-8P, 2,7-Dinitrofluorene 65550-83-6P  
 109805-03-0P  
 (diaminofluorenylidene derivs. and organic electroluminescent  
 devices having low driving voltage)

IT 86-73-7, Fluorene 100-52-7, Benzaldehyde, reactions  
591-50-4, Iodobenzene  
(diaminofluorenylidene derivs. and organic electroluminescent  
devices having low driving voltage)

IT 267881-36-7 267881-37-8 267881-38-9  
267881-39-0 267881-40-3  
(electron barrier **layers**; diaminofluorenylidene  
derivs. and organic electroluminescent devices having low driving  
voltage)

IT 267881-32-3P 267881-33-4P 267881-34-5P  
267881-35-6P  
(hole-injection/transportation **layer**;  
diaminofluorenylidene derivs. and organic electroluminescent  
devices having low driving voltage)

L40 ANSWER 56 OF 65 CAPLUS COPYRIGHT 2005 ACS on STN

ACCESSION NUMBER: 2000:62778 CAPLUS

DOCUMENT NUMBER: 132:129772

TITLE: White light emission from organic LEDs  
utilizing spiro compounds with  
high-temperature stability

AUTHOR(S): Steuber, Frank; Staudigel, Jorg; Stossel,  
Matthias; Simmerer, Jurg; Winnacker,  
Albrecht; Spreitzer, Hubert; Weissortel,  
Frank; Salbeck, Josef

CORPORATE SOURCE: Siemens A.-G., Erlangen, D-91052, Germany

SOURCE: Advanced Materials (Weinheim, Germany) (2000),  
12(2), 130-133  
CODEN: ADVMEW; ISSN: 0935-9648

PUBLISHER: Wiley-VCH Verlag GmbH

DOCUMENT TYPE: Journal

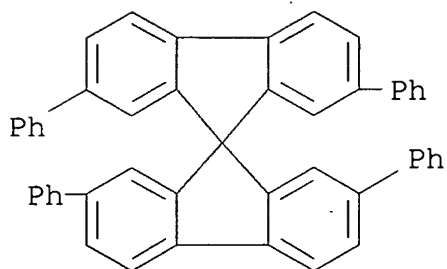
LANGUAGE: English

AB Direct white light emission from organic LEDs with high-temperature  
stability using spiro-linked low mol. weight structures was  
demonstrated. The thermal stability was characterized. The  
emission spectra were optimized to achieve ideal white light.

IT 171408-92-7, 2,2',4,4'-Tetraphenyl-9,9'-spirobifluorene  
171408-94-9, 2,2',4,4',7,7'-Hexakis(4-biphenyl)-9,9'-  
spirobifluorene  
(emitting **layer**; white light emission from organic LEDs  
with spiro compds. as emitting **layer** with high-temperature  
stability)

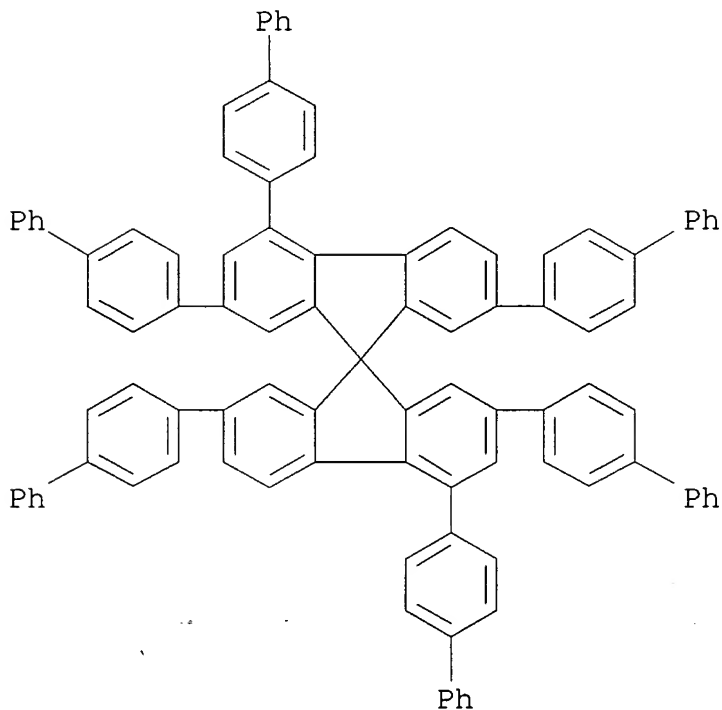
RN 171408-92-7 CAPLUS

CN 9,9'-Spirobi[9H-fluorene], 2,2',7,7'-tetraphenyl- (9CI) (CA INDEX  
NAME)



RN 171408-94-9 CAPLUS

CN 9,9'-Spirobi[9H-fluorene], 2,2',4,4',7,7'-hexakis([1,1'-biphenyl]-4-yl)- (9CI) (CA INDEX NAME)

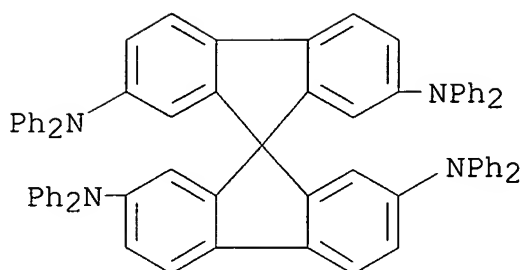


IT 189363-47-1, 2,2',7,7'-Tetrakis(diphenylamino)-9,9'-spirobifluorene

(hole transport **layer**; white light emission from organic LEDs with spiro compds. as emitting **layer** with high-temperature stability)

RN 189363-47-1 CAPLUS

CN 9,9'-Spirobi[9H-fluorene]-2,2',7,7'-tetramine, N,N,N',N',N'',N'',N''',N''''-octaphenyl- (9CI) (CA INDEX NAME)



- CC 73-12 (**Optical**, Electron, and Mass Spectroscopy and Other Related Properties)  
Section cross-reference(s): 22, 76
- ST LED org white light emission spiro compd thermal stability; glass transition temp spiro compd LED emitting **layer**; elec property white LED spiro compd emitting **layer**
- IT Current density  
(of white **light emitting** organic LEDs with spiro compds. as emitting **layer**)
- IT Glass transition temperature  
(of white **light emitting** organic LEDs with spiro compds. as emitting **layer** with high-temperature stability)
- IT **Luminescence**, electroluminescence  
(white light emission from organic LEDs with spiro compds. as emitting **layer** with high-temperature stability)
- IT Electroluminescent devices  
(white; white light emission from organic LEDs with spiro compds. as emitting **layer** with high-temperature stability)
- IT 517-51-1, Rubrene  
(dopant in spiro compound emitting **layer**; white light emission from organic LEDs with spiro compds. as emitting **layer** with high-temperature stability)
- IT 2085-33-8, Hydroxyquinolinealuminum  
(electron transport **layer**; white light emission from organic LEDs with spiro compds. as emitting **layer** with high-temperature stability)
- IT 123847-85-8 **171408-92-7**, 2,2',4,4'-Tetraphenyl-9,9'-spirobifluorene **171408-94-9**, 2,2',4,4',7,7'-Hexakis(4-biphenyl)-9,9'-spirobifluorene  
(emitting **layer**; white light emission from organic LEDs with spiro compds. as emitting **layer** with high-temperature stability)
- IT 124729-98-2, 4,4',4''-Tris(N-(3-methylphenyl)-N-phenylamino)triphenylamine **189363-47-1**, 2,2',7,7'-Tetrakis(diphenylamino)-9,9'-spirobifluorene  
(hole transport **layer**; white light emission from organic

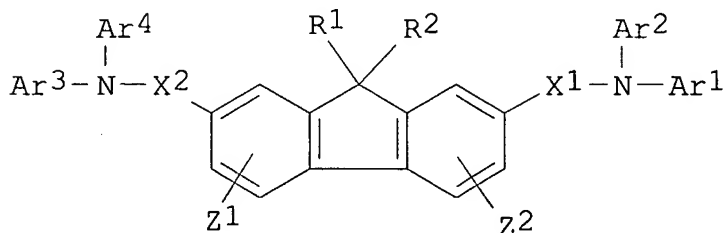
LEDs with spiro compds. as emitting layer with high-temperature stability)

REFERENCE COUNT: 25 THERE ARE 25 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L40 ANSWER 57 OF 65 CAPLUS COPYRIGHT 2005 ACS on STN  
 ACCESSION NUMBER: 1999:519075 CAPLUS  
 DOCUMENT NUMBER: 131:191677  
 TITLE: Organic field-effect electroluminescent devices with long lifetime  
 INVENTOR(S): Nakatsuka, Masakatsu; Kitamoto, Noriko  
 PATENT ASSIGNEE(S): Mitsui Chemicals Inc., Japan  
 SOURCE: Jpn. Kokai Tokkyo Koho, .65 pp.  
 CODEN: JKXXAF  
 DOCUMENT TYPE: Patent  
 LANGUAGE: Japanese  
 FAMILY ACC. NUM. COUNT: 1  
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 11224779	A2	19990817	JP 1998-23610	1998 0204
PRIORITY APPLN. INFO.:				JP 1998-23610 1998 0204

OTHER SOURCE(S): MARPAT 131:191677  
 GI



AB The devices have  $\geq 1$  layer(s) containing fluorene-containing aryldiamines I [Ar1-Ar4 = (un)substituted aryl; Ar1 and Ar2, and Ar3 and Ar4 may form heterocyclic group with N; R1, R2 = H, normal, branched, or cyclic alkyl, (un)substituted



aryl or aralkyl; Z1, Z2 = H, halo, normal, branched, or cyclic alkyl, (un)substituted alkoxy or aryl; X1, X2 = (un)substituted arylene] between a pair of electrodes. The I-containing layers may be hole-injecting-transporting layers or light-emitting layers. The devices show long lifetime and good durability.

IT 239475-90-2 239475-91-3 239475-92-4  
 239475-93-5 239475-94-6 239475-95-7  
 239475-96-8 239475-97-9 239475-98-0  
 239475-99-1 239476-00-7 239476-01-8  
 239476-02-9 239476-03-0 239476-04-1  
 239476-05-2 239476-06-3 239476-07-4  
 239476-08-5 239476-09-6 239476-10-9  
 239476-11-0 239476-12-1 239476-13-2  
 239476-16-5 239476-17-6 239476-18-7  
 239476-19-8 239476-20-1 239476-21-2  
 239476-22-3 239476-23-4 239476-24-5  
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 239476-28-9 239476-29-0 239476-47-2  
 239476-48-3 239476-49-4

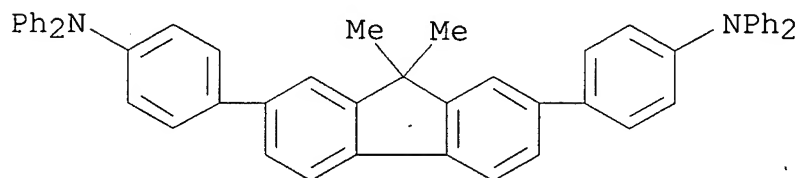
(hole-injecting-transporting compds.; long-lifetime field-effect electroluminescent devices containing

fluorene-containing

aryldiamines)

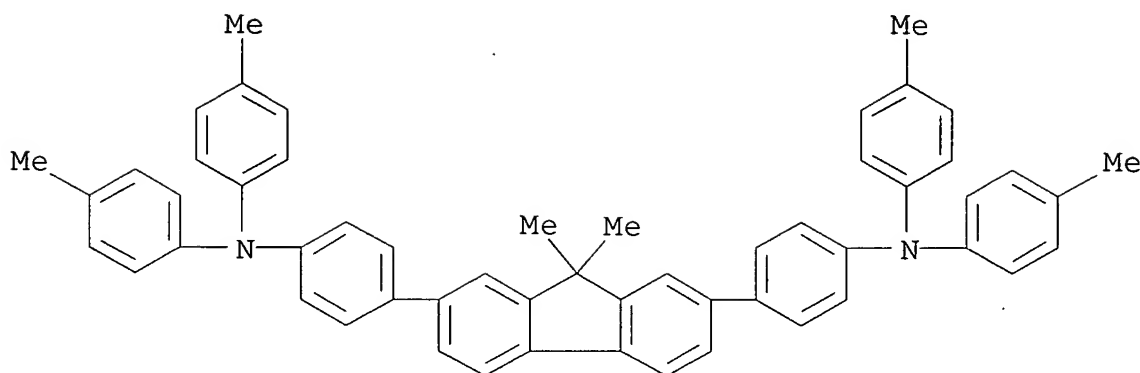
RN 239475-90-2 CAPLUS

CN Benzenamine, 4,4'-(9,9-dimethyl-9H-fluorene-2,7-diyl)bis[N,N-diphenyl- (9CI) (CA INDEX NAME)



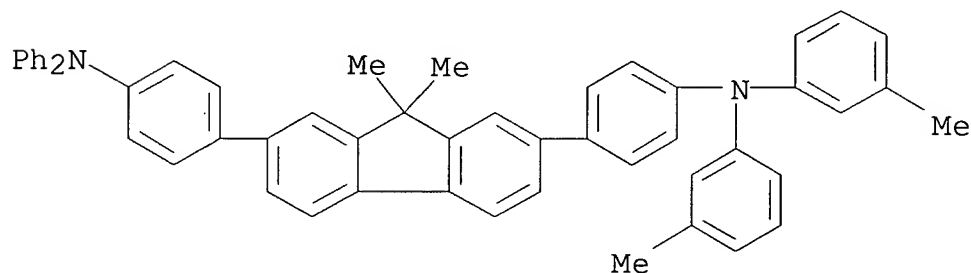
RN 239475-91-3 CAPLUS

CN Benzenamine, 4,4'-(9,9-dimethyl-9H-fluorene-2,7-diyl)bis[N,N-bis(4-methylphenyl)- (9CI) (CA INDEX NAME)



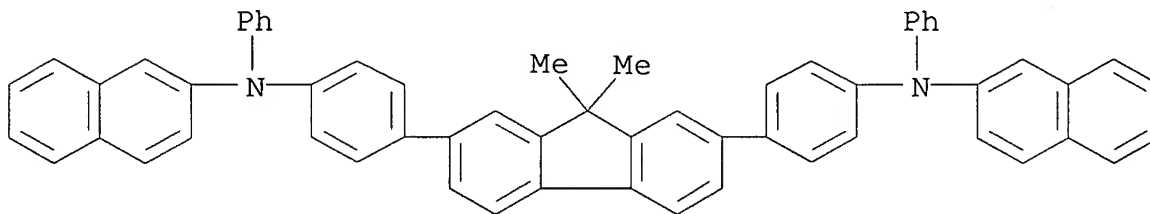
RN 239475-92-4 CAPLUS

CN Benzenamine, 4-[7-[4-[bis(3-methylphenyl)amino]phenyl]-9,9-dimethyl-9H-fluorene-2-yl]-N,N-diphenyl- (9CI) (CA INDEX NAME)



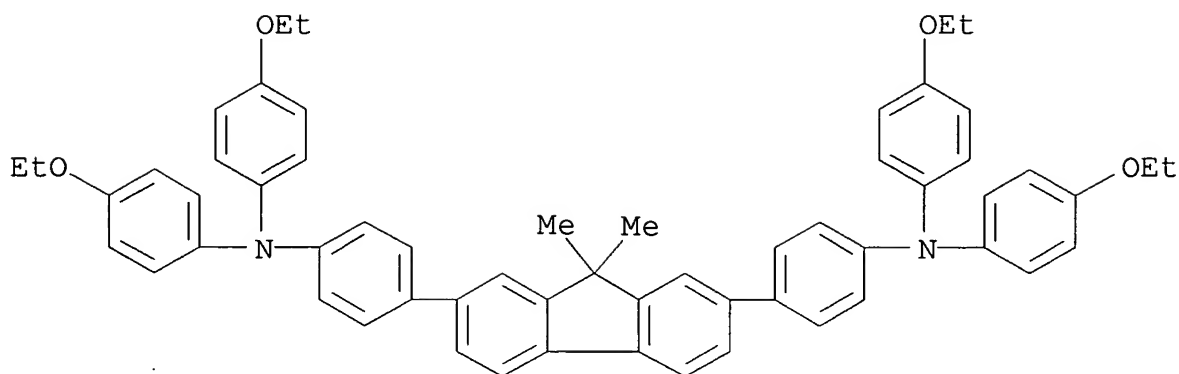
RN 239475-93-5 CAPLUS

CN 2-Naphthalenamine, N,N'-[(9,9-dimethyl-9H-fluorene-2,7-diyl)di-4,1-phenylene]bis[N-phenyl- (9CI) (CA INDEX NAME)



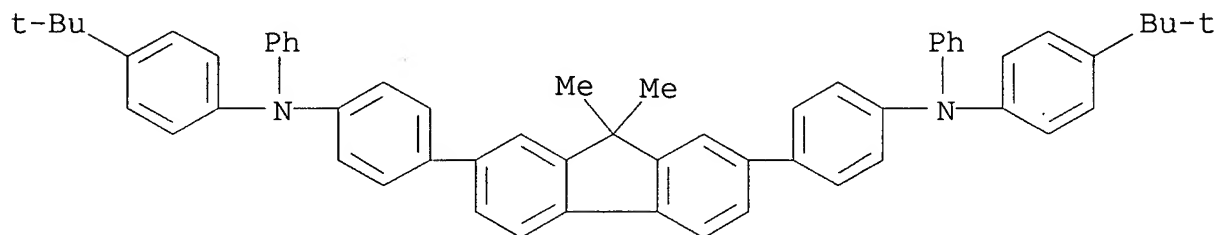
RN 239475-94-6 CAPLUS

CN Benzenamine, 4,4'-[(9,9-dimethyl-9H-fluorene-2,7-diyl)bis[N,N-bis(4-ethoxyphenyl)- (9CI) (CA INDEX NAME)



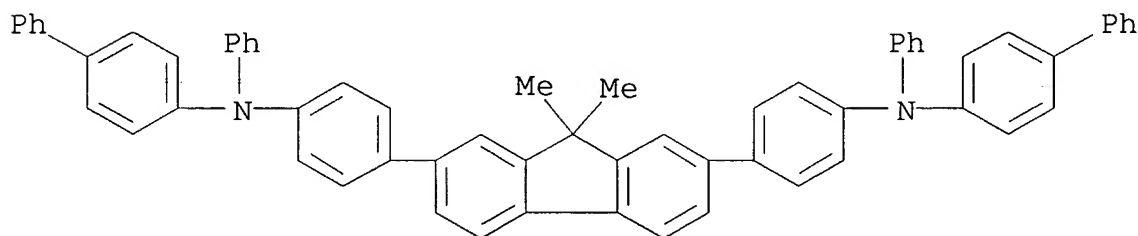
RN 239475-95-7 CAPLUS

CN Benzenamine, 4,4'-(9,9-dimethyl-9H-fluorene-2,7-diyl)bis[N-[4-(1,1-dimethylethyl)phenyl]-N-phenyl- (9CI) (CA INDEX NAME)



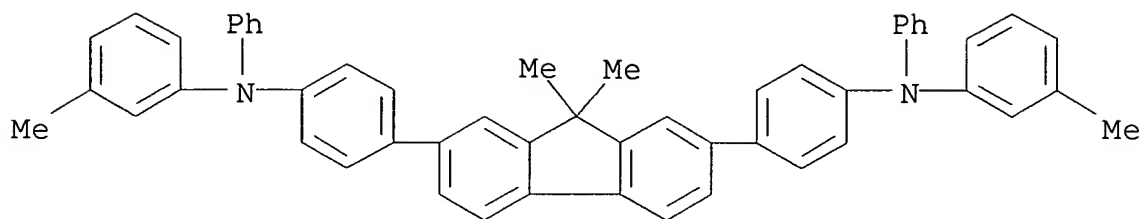
RN 239475-96-8 CAPLUS

CN [1,1'-Biphenyl]-4-amine, N,N'-[(9,9-dimethyl-9H-fluorene-2,7-diyl)di-4,1-phenylene]bis[N-phenyl- (9CI) (CA INDEX NAME)



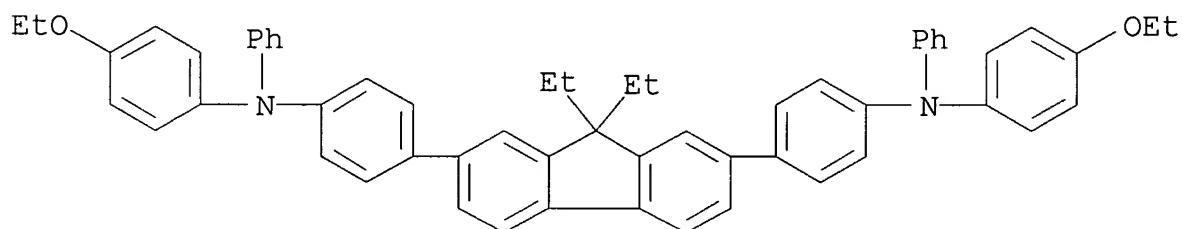
RN 239475-97-9 CAPLUS

CN Benzenamine, 4,4'-(9,9-dimethyl-9H-fluorene-2,7-diyl)bis[N-(3-methylphenyl)-N-phenyl- (9CI) (CA INDEX NAME)



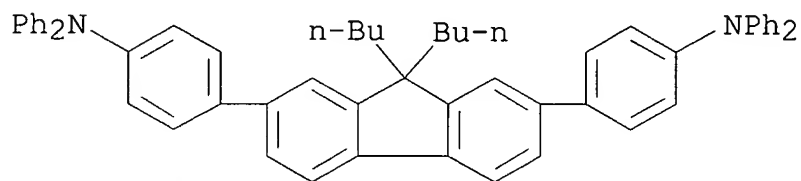
RN 239475-98-0 CAPLUS

CN Benzenamine, 4,4'-(9,9-diethyl-9H-fluorene-2,7-diyl)bis[N-(4-ethoxyphenyl)-N-phenyl- (9CI) (CA INDEX NAME)



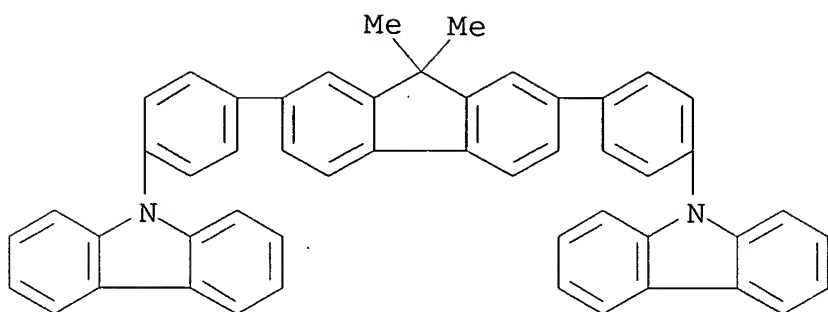
RN 239475-99-1 CAPLUS

CN Benzenamine, 4,4'-(9,9-dibutyl-9H-fluorene-2,7-diyl)bis[N,N-diphenyl- (9CI) (CA INDEX NAME)



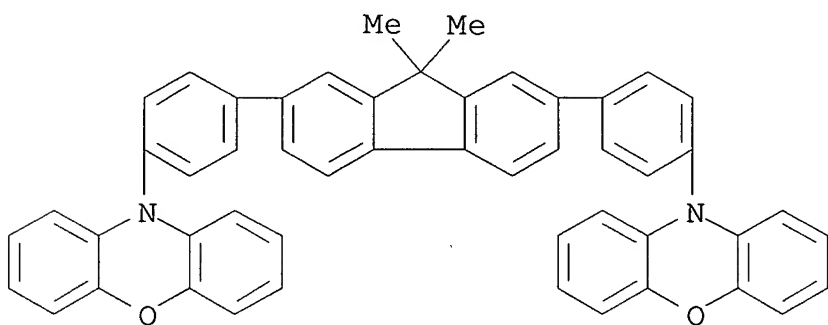
RN 239476-00-7 CAPLUS

CN 9H-Carbazole, 9,9'-[(9,9-dimethyl-9H-fluorene-2,7-diyl)di-4,1-phenylene]bis- (9CI) (CA INDEX NAME)



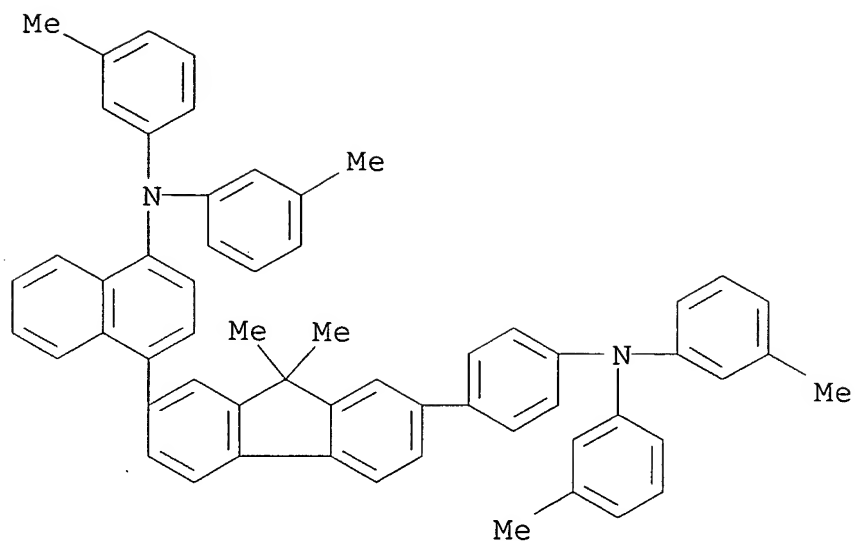
RN 239476-01-8 CAPLUS

CN 10H-Phenoxazine, 10,10'-[(9,9-dimethyl-9H-fluorene-2,7-diyl)di-4,1-phenylene]bis- (9CI) (CA INDEX NAME)



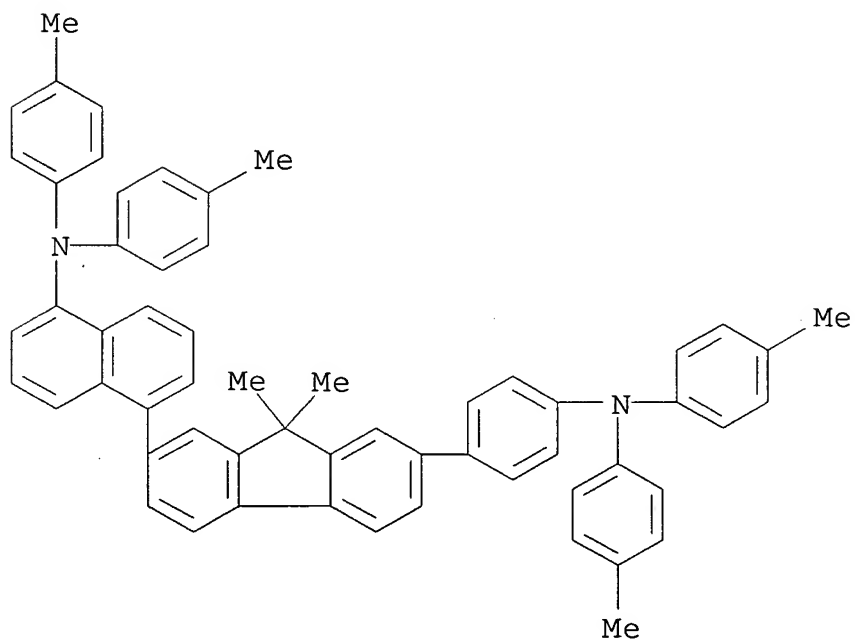
RN 239476-02-9 CAPLUS

CN 1-Naphthalenamine, 4-[7-[4-[bis(3-methylphenyl)amino]phenyl]-9,9-dimethyl-9H-fluoren-2-yl]-N,N-bis(3-methylphenyl)- (9CI) (CA INDEX NAME)



RN 239476-03-0 CAPLUS

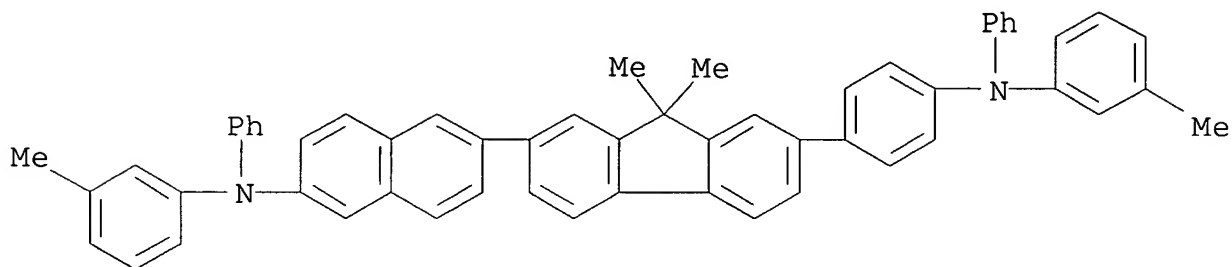
CN 1-Naphthalenamine, 5-[7-[4-[bis(4-methylphenyl)amino]phenyl]-9,9-dimethyl-9H-fluoren-2-yl]-N,N-bis(4-methylphenyl)- (9CI) (CA INDEX NAME)



RN 239476-04-1 CAPLUS

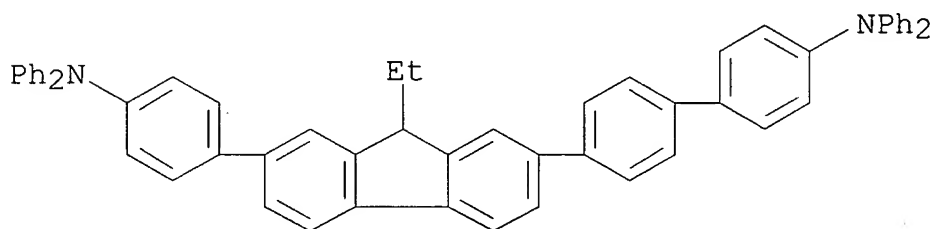
CN 2-Naphthalenamine, 6-[9,9-dimethyl-7-[4-[(3-methylphenyl)amino]phenyl]-9,9-dimethyl-9H-fluoren-2-yl]-N,N-bis(4-methylphenyl)- (9CI) (CA INDEX NAME)

methylphenyl)phenylamino]phenyl]-9H-fluoren-2-yl]-N-(3-methylphenyl)-N-phenyl- (9CI) (CA INDEX NAME)



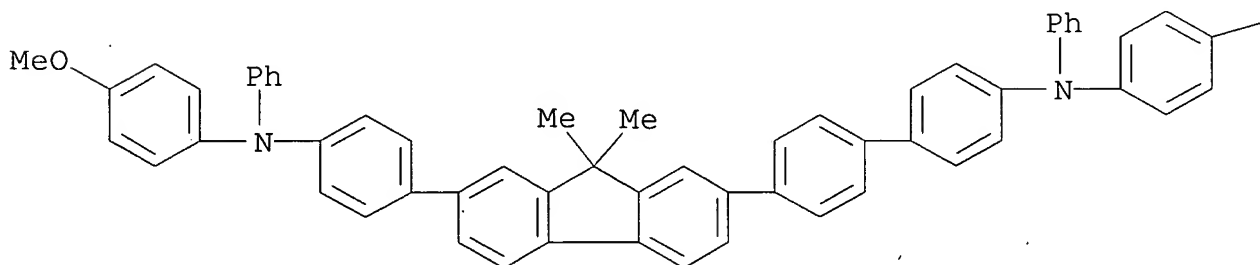
RN 239476-05-2 CAPLUS

CN [1,1'-Biphenyl]-4-amine, 4'-[7-[4-(diphenylamino)phenyl]-9-ethyl-9H-fluoren-2-yl]-N,N-diphenyl- (9CI) (CA INDEX NAME)



RN 239476-06-3 CAPLUS

CN [1,1'-Biphenyl]-4-amine, N-(4-methoxyphenyl)-4'-[7-[4-[(4-methoxyphenyl)phenylamino]phenyl]-9,9-dimethyl-9H-fluoren-2-yl]-N-phenyl- (9CI) (CA INDEX NAME)



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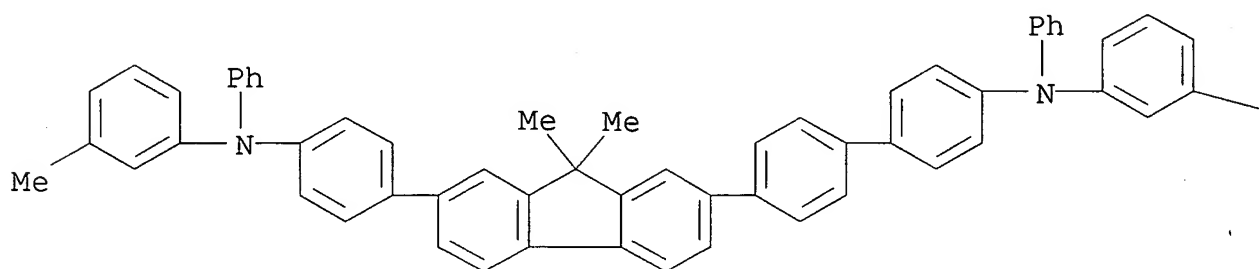
PAGE 1-B

— OMe

RN 239476-07-4 CAPLUS

CN [1,1'-Biphenyl]-4-amine, 4'-[9,9-dimethyl-7-[4-[(3-methylphenyl)phenylamino]phenyl]-9H-fluoren-2-yl]-N-(3-methylphenyl)-N-phenyl- (9CI) (CA INDEX NAME)

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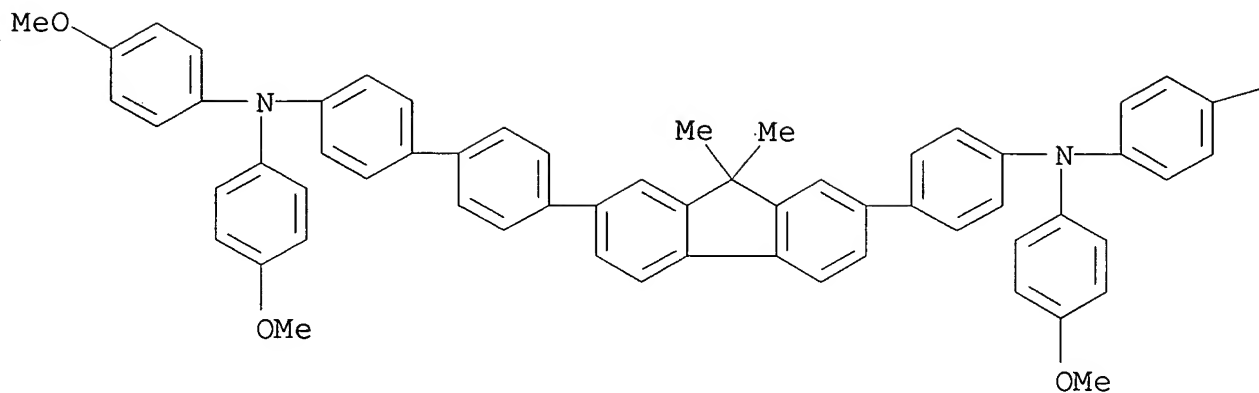
— Me

RN 239476-08-5 CAPLUS

CN [1,1'-Biphenyl]-4-amine, 4'-[7-[4-[bis(4-methoxyphenyl)amino]phenyl]-9,9-dimethyl-9H-fluoren-2-yl]-N,N-bis(4-methoxyphenyl)- (9CI) (CA INDEX NAME)



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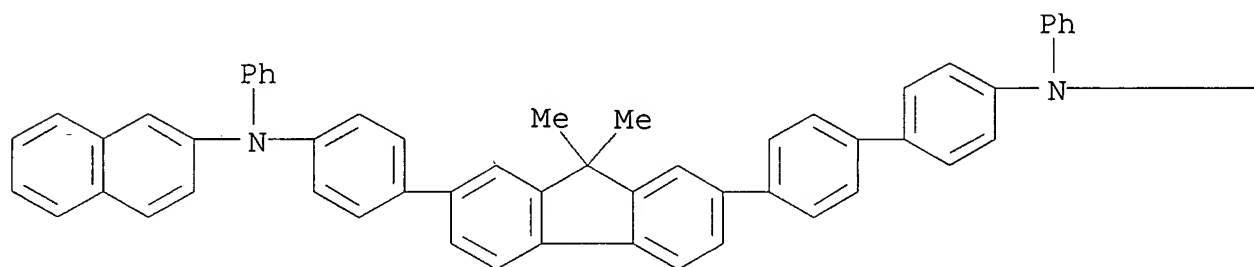


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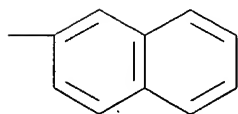
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RN 239476-09-6 CAPLUS  
 CN 2-Naphthalenamine, N-[4-[9,9-dimethyl-7-[4'-(2-naphthalenylphenylamino)[1,1'-biphenyl]-4-yl]-9H-fluoren-2-yl]phenyl]-N-phenyl- (9CI) (CA INDEX NAME)

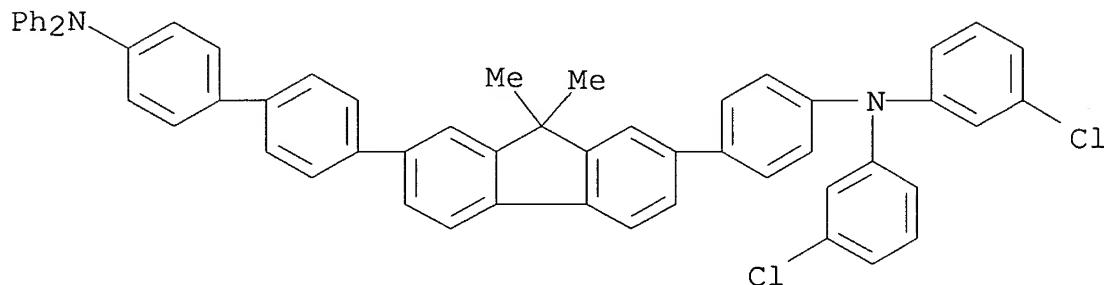
PAGE 1-A



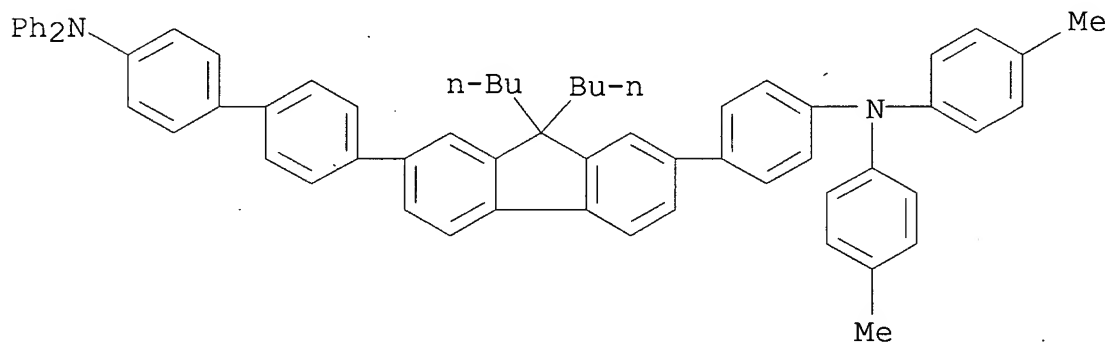
PAGE 1-B



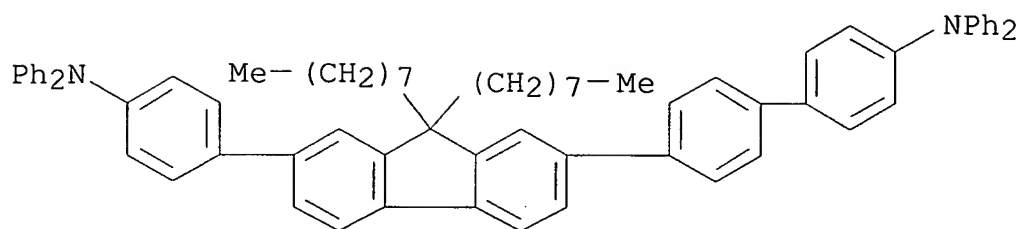
RN 239476-10-9 CAPLUS  
CN [1,1'-Biphenyl]-4-amine, 4'-[7-[4-[bis(3-chlorophenyl)amino]phenyl]-9,9-dimethyl-9H-fluoren-2-yl]-N,N-diphenyl- (9CI) (CA INDEX NAME)



RN 239476-11-0 CAPLUS  
CN [1,1'-Biphenyl]-4-amine, 4'-[7-[4-[bis(4-methylphenyl)amino]phenyl]-9,9-dibutyl-9H-fluoren-2-yl]-N,N-diphenyl- (9CI) (CA INDEX NAME)

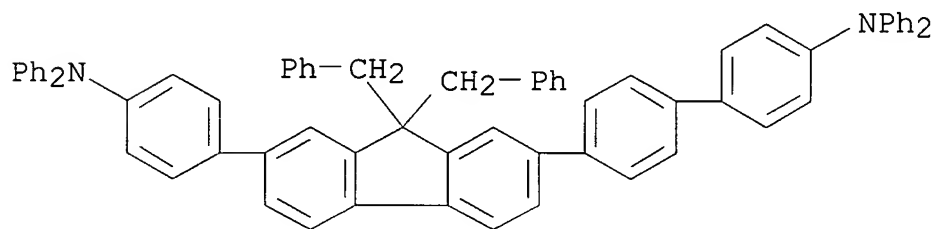


RN 239476-12-1 CAPLUS  
CN [1,1'-Biphenyl]-4-amine, 4'-[7-[4-(diphenylamino)phenyl]-9,9-dioctyl-9H-fluoren-2-yl]-N,N-diphenyl- (9CI) (CA INDEX NAME)



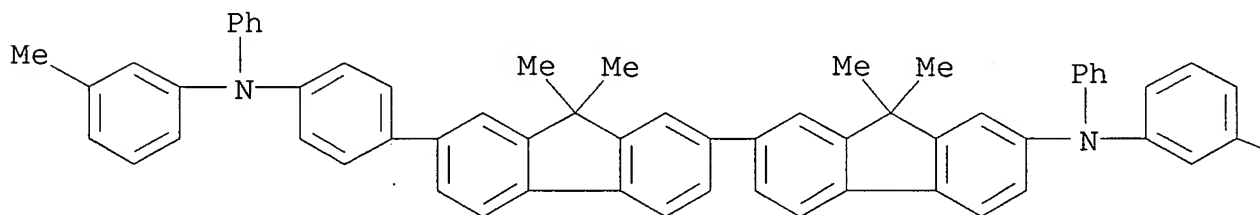
RN 239476-13-2 CAPLUS

CN [1,1'-Biphenyl]-4-amine, 4'-[7-[4-(diphenylamino)phenyl]-9,9-bis(phenylmethyl)-9H-fluoren-2-yl]-N,N-diphenyl- (9CI) (CA INDEX NAME)



RN 239476-16-5 CAPLUS

CN [2,2'-Bi-9H-fluoren]-7-amine, 9,9,9',9'-tetramethyl-N-(3-methylphenyl)-7'-[4-[(3-methylphenyl)phenylamino]phenyl]-N-phenyl- (9CI) (CA INDEX NAME)



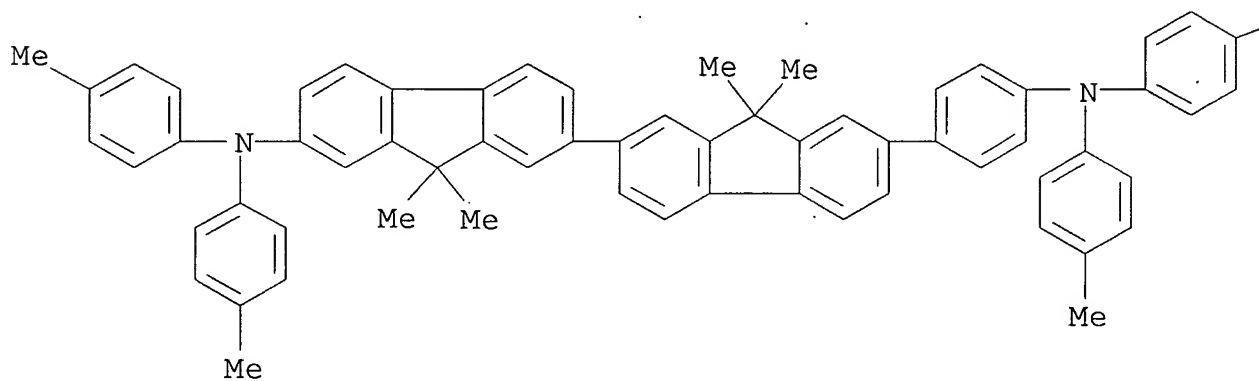
PAGE 1-A

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Me

RN 239476-17-6 CAPLUS  
 CN [2,2'-Bi-9H-fluoren]-7-amine, 7'-[4-[bis(4-methylphenyl)amino]phenyl]-9,9,9',9'-tetramethyl-N,N-bis(4-methylphenyl)- (9CI) (CA INDEX NAME)

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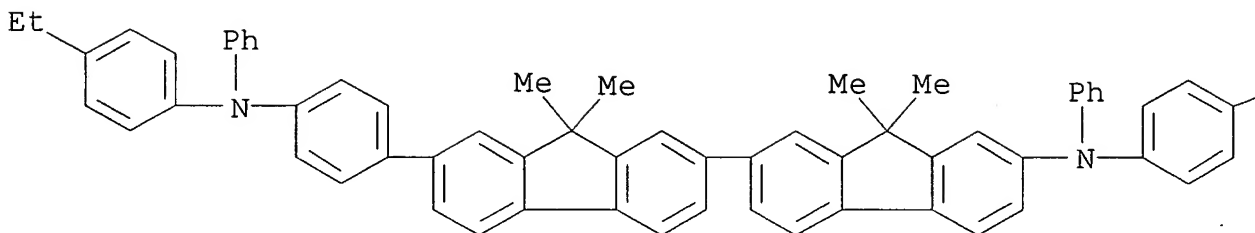


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Me

RN 239476-18-7 CAPLUS  
 CN [2,2'-Bi-9H-fluoren]-7-amine, N-(4-ethylphenyl)-7'-[4-[(4-ethylphenyl)phenylamino]phenyl]-9,9,9',9'-tetramethyl-N-phenyl- (9CI) (CA INDEX NAME)

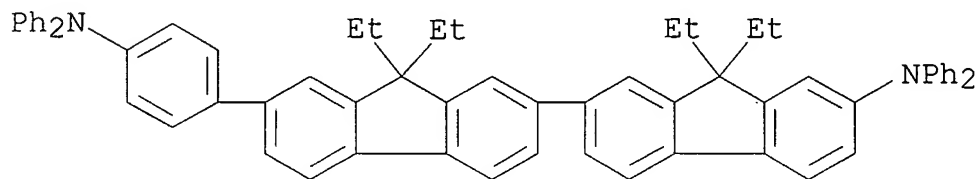
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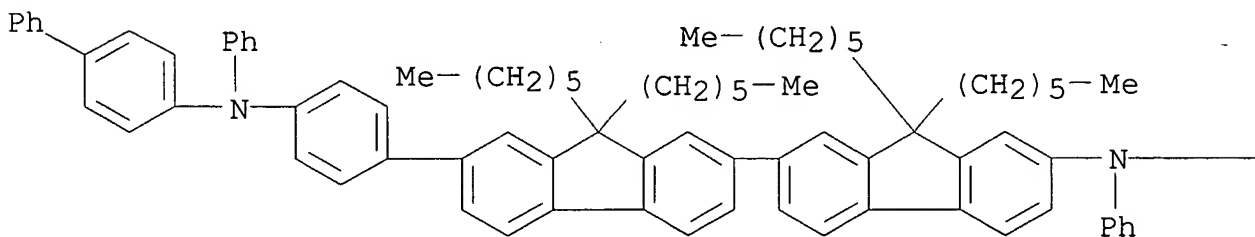
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RN 239476-19-8 CAPLUS  
 CN [2,2'-Bi-9H-fluoren]-7-amine, 7'-[4-(diphenylamino)phenyl]-  
 9,9,9',9'-tetraethyl-N,N-diphenyl- (9CI) (CA INDEX NAME)

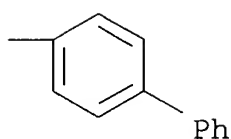


RN 239476-20-1 CAPLUS  
 CN [2,2'-Bi-9H-fluoren]-7-amine, N-[1,1'-biphenyl]-4-yl-7'-[4-([1,1'-  
 biphenyl]-4-ylphenylamino)phenyl]-9,9,9',9'-tetrahexyl-N-phenyl-  
 (9CI) (CA INDEX NAME)

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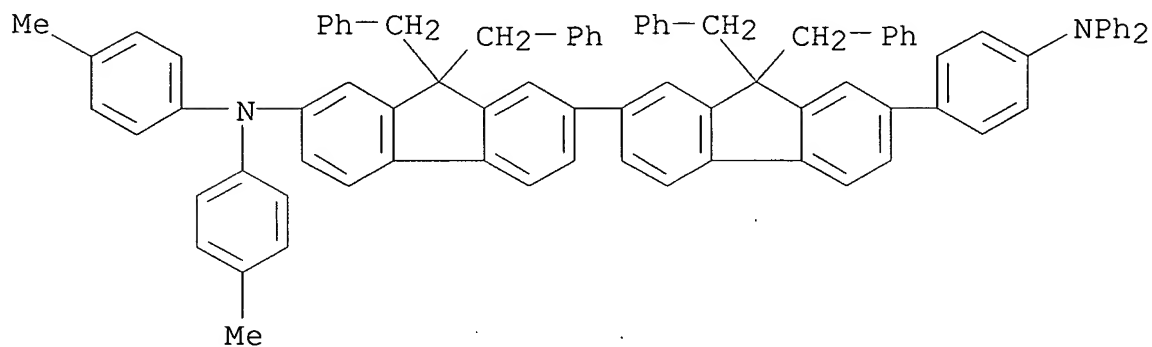


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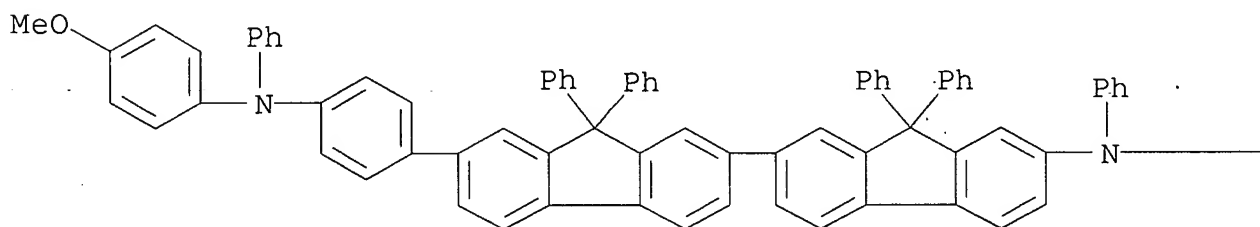
RN 239476-21-2 CAPLUS

CN [2,2'-Bi-9H-fluoren]-7-amine, 7'-[4-(diphenylamino)phenyl]-N,N-bis(4-methylphenyl)-9,9,9',9'-tetrakis(phenylmethyl)- (9CI) (CA INDEX NAME)



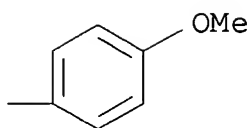
RN 239476-22-3 CAPLUS

CN [2,2'-Bi-9H-fluoren]-7-amine, N-(4-methoxyphenyl)-7'-[4-[(4-methoxyphenyl)phenylamino]phenyl]-N,9,9,9',9'-pentaphenyl- (9CI) (CA INDEX NAME)

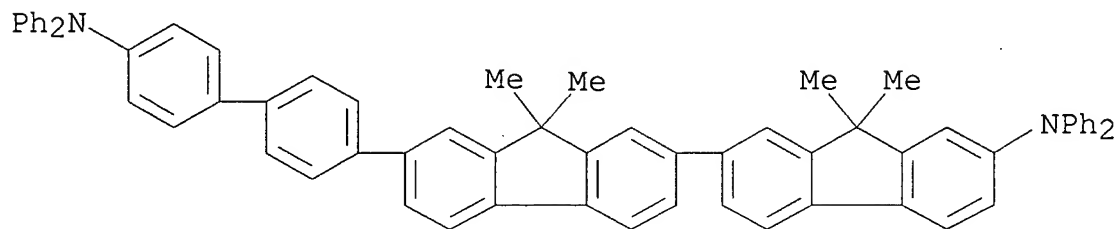


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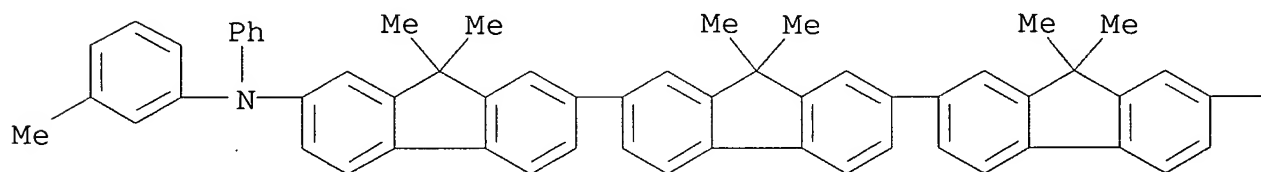


RN 239476-23-4 CAPLUS  
 CN [2,2'-Bi-9H-fluoren]-7-amine, 7'-[4'-(diphenylamino)[1,1'-biphenyl]-4-yl]-9,9,9',9'-tetramethyl-N,N-diphenyl- (9CI) (CA INDEX NAME)

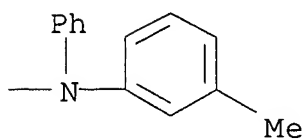


RN 239476-24-5 CAPLUS  
 CN [2,2':7',2''-Ter-9H-fluorene]-7,7''-diamine, 9,9,9',9',9'',9''-hexamethyl-N,N'-bis(3-methylphenyl)-N,N'-diphenyl- (9CI) (CA INDEX NAME)

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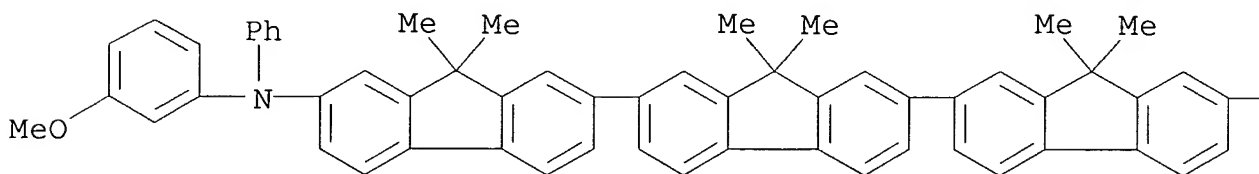
PAGE 1-B



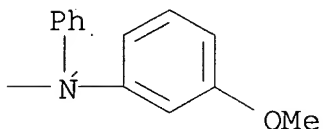
RN 239476-25-6 CAPLUS

CN [2,2':7',2''-Ter-9H-fluorene]-7,7''-diamine, N,N'-bis(3-methoxyphenyl)-9,9,9',9',9'',9''-hexamethyl-N,N'-diphenyl- (9CI)  
(CA INDEX NAME)

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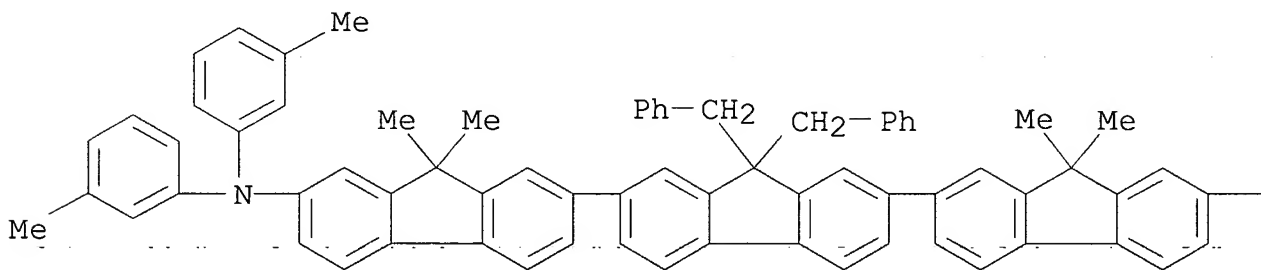
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RN 239476-26-7 CAPLUS

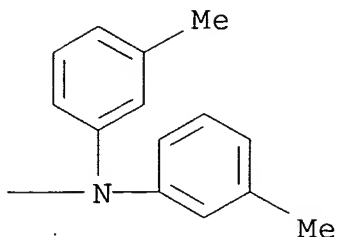
CN [2,2':7',2''-Ter-9H-fluorene]-7,7''-diamine, 9,9,9',9''-tetramethyl-N,N,N',N'-tetrakis(3-methylphenyl)-9',9'-bis(phenylmethyl)- (9CI) (CA INDEX NAME)

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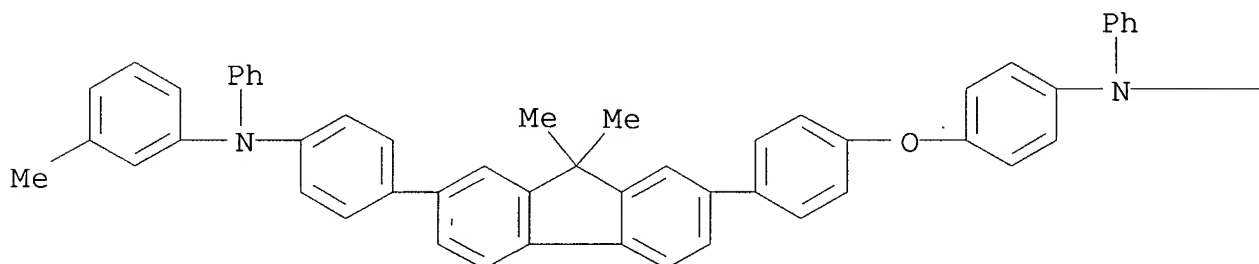


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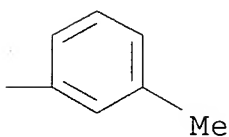


RN 239476-27-8 CAPLUS  
 CN Benzenamine, 4-[9,9-dimethyl-7-[4-[4-[(3-methylphenyl)phenylamino]phenoxy]phenyl]-9H-fluoren-2-yl]-N-(3-methylphenyl)-N-phenyl- (9CI) (CA. INDEX NAME)

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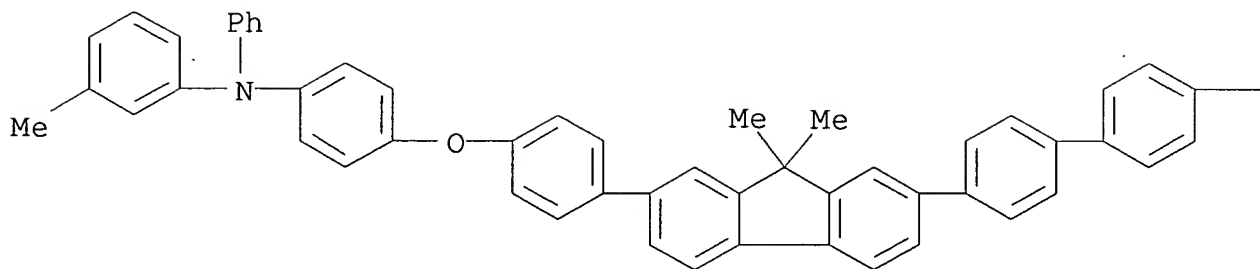


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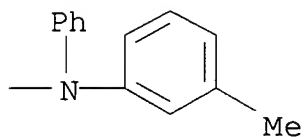


RN 239476-28-9 CAPLUS  
 CN [1,1'-Biphenyl]-4-amine, 4'-[9,9-dimethyl-7-[4-[4-[(3-methylphenyl)phenylamino]phenoxy]phenyl]-9H-fluoren-2-yl]-N-(3-methylphenyl)-N-phenyl- (9CI) (CA INDEX NAME)

PAGE 1-A



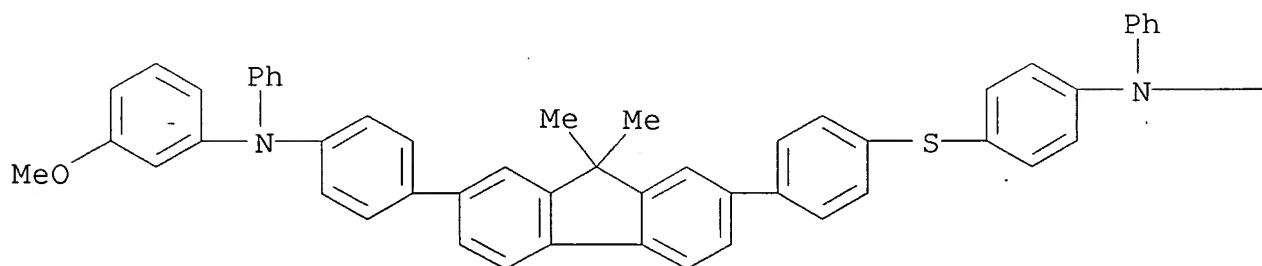
PAGE 1-B



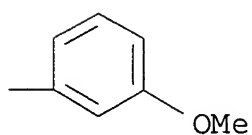
RN 239476-29-0 CAPLUS

CN Benzenamine, N-(3-methoxyphenyl)-4-[[4-[7-[4-[(3-methoxyphenyl)phenylamino]phenyl]-9,9-dimethyl-9H-fluoren-2-yl]phenyl]thio]-N-phenyl- (9CI) (CA INDEX NAME)

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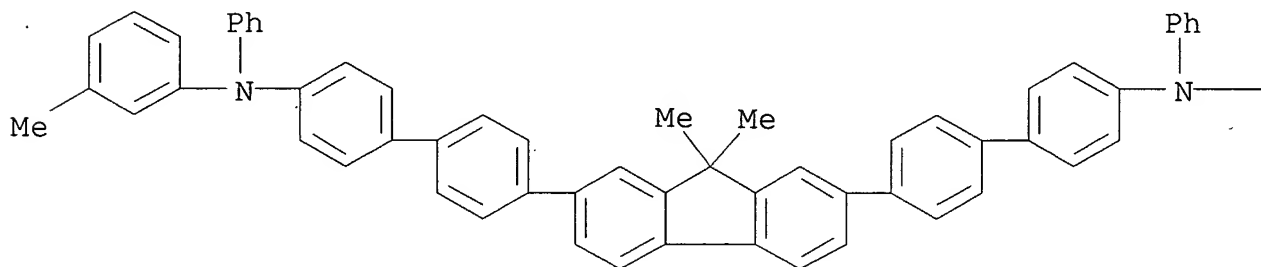
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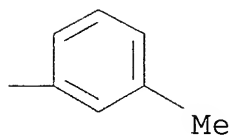
RN 239476-47-2 CAPLUS

CN [1,1'-Biphenyl]-4-amine, 4',4'''-(9,9-dimethyl-9H-fluorene-2,7-diyl)bis[N-(3-methylphenyl)-N-phenyl- (9CI) (CA INDEX NAME)

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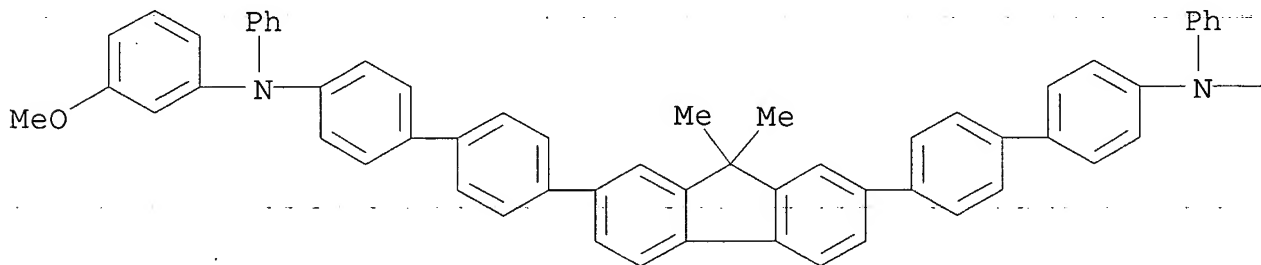
PAGE 1-B



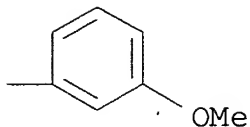
RN 239476-48-3 CAPLUS

CN [1,1'-Biphenyl]-4-amine, 4',4'''-(9,9-dimethyl-9H-fluorene-2,7-diyl)bis[N-(3-methoxyphenyl)-N-phenyl- (9CI) (CA INDEX NAME)

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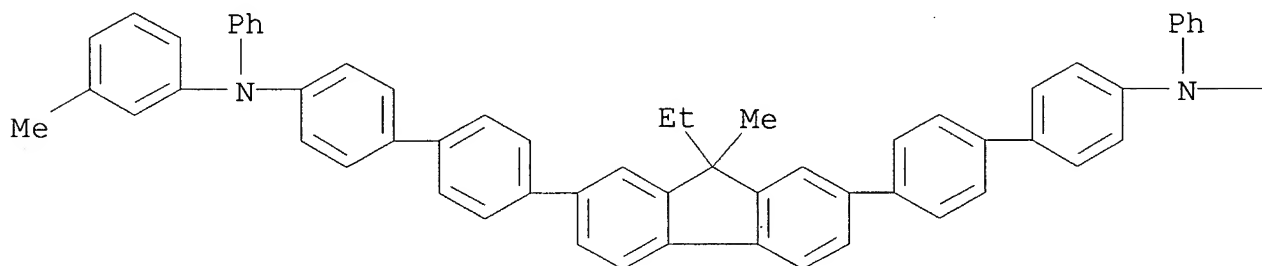


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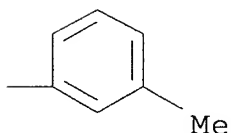


RN 239476-49-4 CAPLUS  
 CN [1,1'-Biphenyl]-4-amine, 4',4'''-(9-ethyl-9-methyl-9H-fluorene-2,7-diyl)bis[N-(3-methylphenyl)-N-phenyl- (9CI) (CA INDEX NAME)

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IC ICM H05B033-14  
 ICS C09K011-06; H05B033-22  
 CC 73-11 (Optical, Electron, and Mass Spectroscopy and  
 Other Related Properties)  
 Section cross-reference(s): 25  
 IT 239475-90-2 239475-91-3 239475-92-4  
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239476-25-6 239476-26-7 239476-27-8  
239476-28-9 239476-29-0 239476-47-2  
239476-48-3 239476-49-4

(hole-injecting-transporting compds.; long-lifetime  
field-effect electroluminescent devices containing  
fluorene-containing  
aryldiamines)

L40 ANSWER 58 OF 65 CAPLUS COPYRIGHT 2005 ACS on STN

ACCESSION NUMBER: 1999:260963 CAPLUS

DOCUMENT NUMBER: 130:330444

TITLE: Organic electroluminescent material containing  
anthracene derivative and organic  
electroluminescent device with it

INVENTOR(S): Okutsu, Satoshi; Tamano, Michiko; Onikubo,  
Shunichi; Maki, Shinichiro; Enokida, Toshio

PATENT ASSIGNEE(S): Toyo Ink Mfg. Co., Ltd., Japan

SOURCE: Jpn. Kokai Tokkyo Koho, 28 pp.

CODEN: JKXXAF

DOCUMENT TYPE: Patent

LANGUAGE: Japanese

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

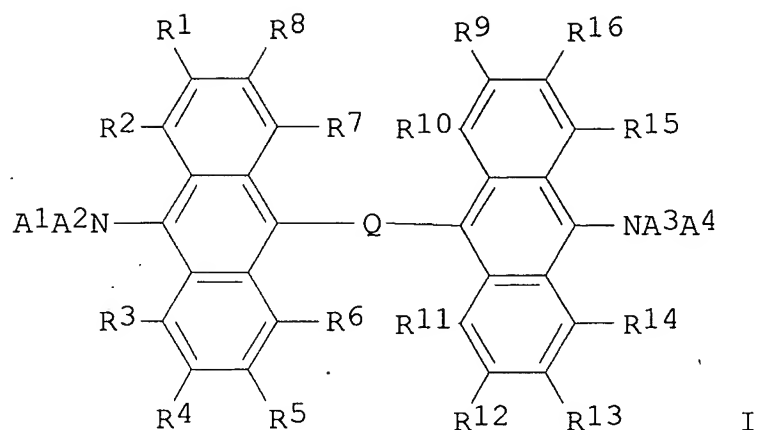
PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 11111460	A2	19990423	JP 1997-271824	1997 1006

PRIORITY APPLN. INFO.: JP 1997-271824

1997  
1006

OTHER SOURCE(S): MARPAT 130:330444

GI



AB The material comprises an anthracene derivative having a formula I (A1-4 = alkyl, monocyclic group, condensed polycyclic; R1-16 = H, haloge, cyano, NO<sub>2</sub>, alkyl, alkoxy, aryloxy, alkylthio, arylthio, monocyclic group, condensed polycyclic, NH<sub>2</sub>; A1 and A2 and A3 and A4 may bond to form a ring; Q = divalent group). The device contains a pair of electrodes sandwiching a **light-emitting layer**-containing organic compound plural thin films containing the material. The device shows high luminance with efficiency and long life.

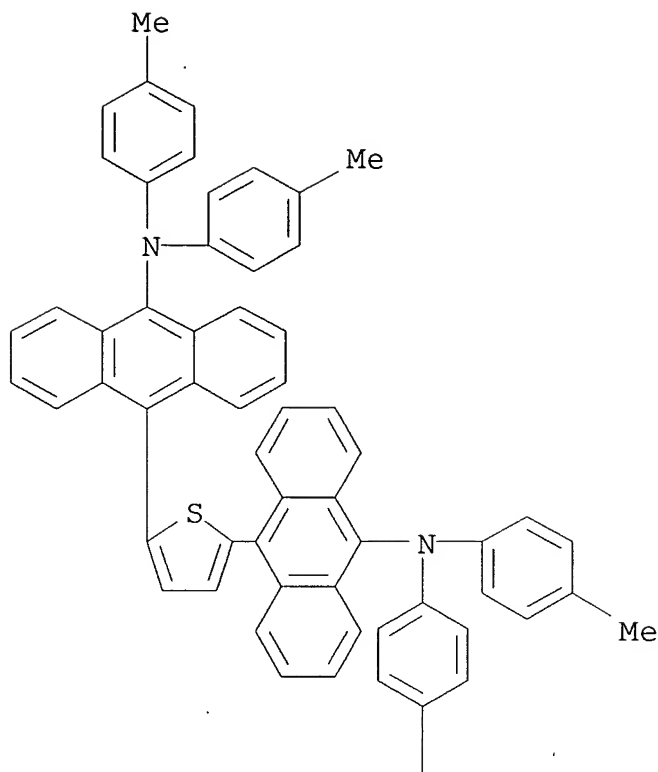
IT 223726-61-2P 223726-62-3P

(organic electroluminescent device containing anthracene derivative)

RN 223726-61-2 CAPLUS

CN 9-Anthracenamine, 10,10'-(2,5-thiophenediyl)bis[N,N-bis(4-methylphenyl)- (9CI) (CA INDEX NAME)

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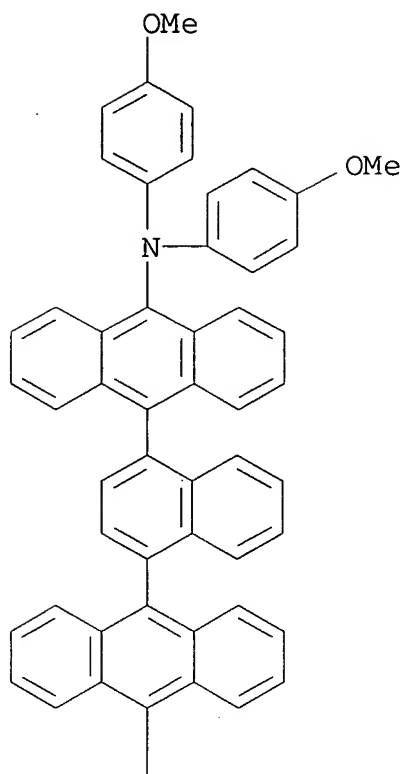


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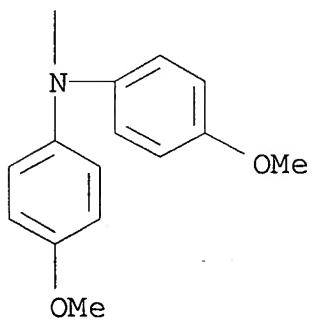
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RN 223726-62-3 CAPLUS  
CN 9-Anthracenamine, 10,10'-(1,4-naphthalenediyl)bis[N,N-bis(4-methoxyphenyl)- (9CI) (CA INDEX NAME)

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IT 223726-64-5 223726-66-7 223726-67-8  
 223726-68-9 223726-69-0 223726-70-3  
 223726-71-4 223726-72-5 223726-73-6  
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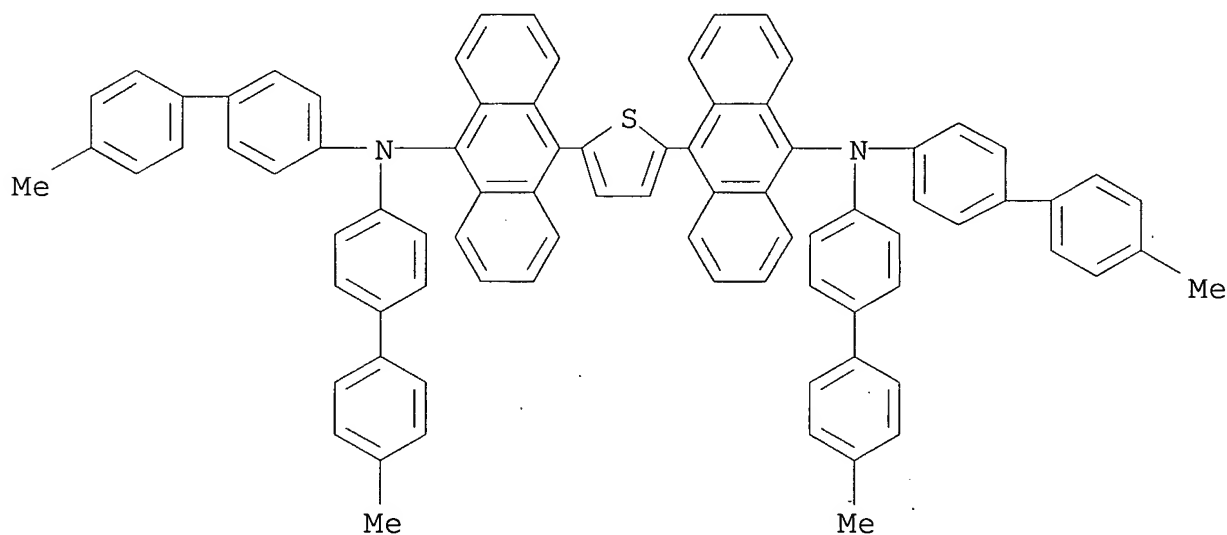


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223727-04-6 223727-05-7 223727-06-8  
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(organic electroluminescent device containing anthracene derivative)

RN 223726-64-5 CAPLUS

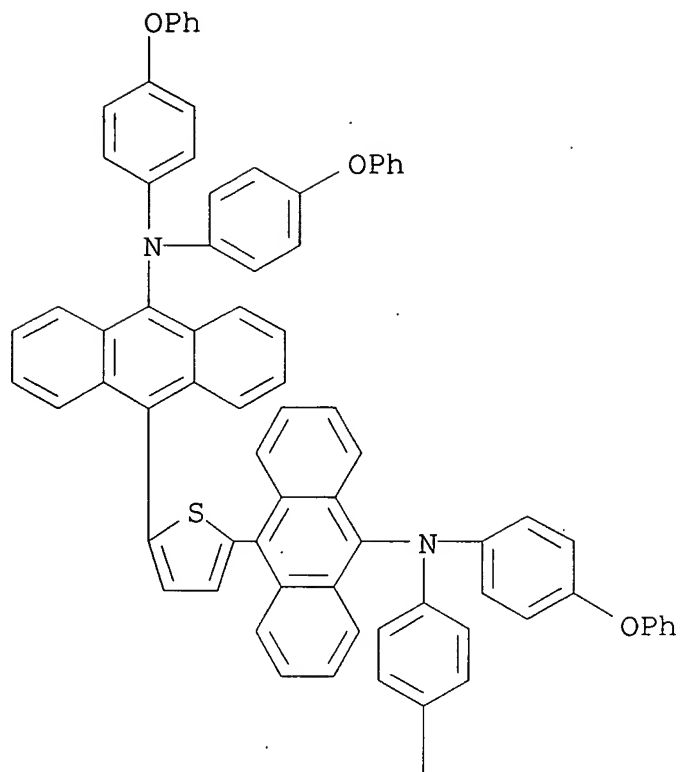
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RN 223726-66-7 CAPLUS

CN 9-Anthracenamine, 10,10'-(2,5-thiophenediyl)bis[N,N-bis(4-phenoxyphenyl)- (9CI) (CA INDEX NAME)

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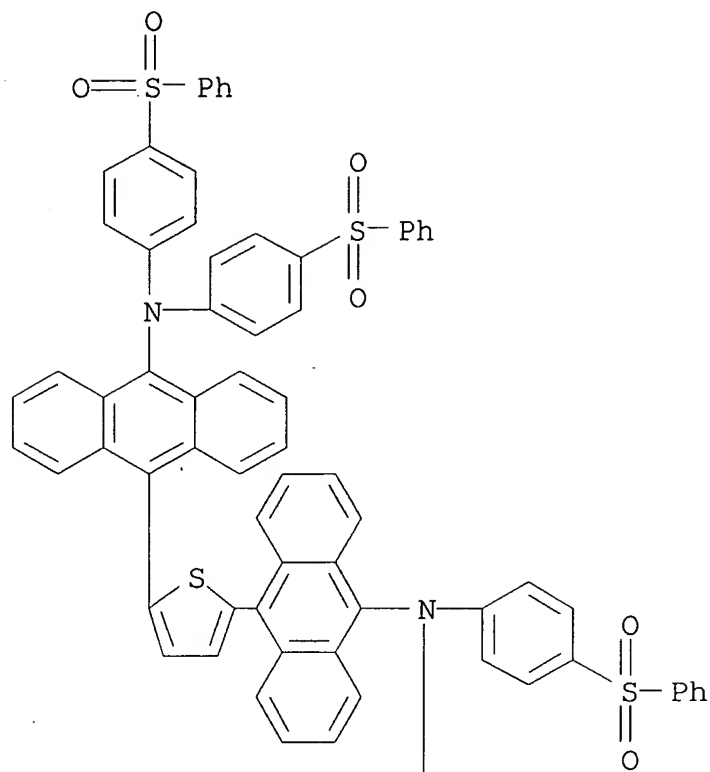


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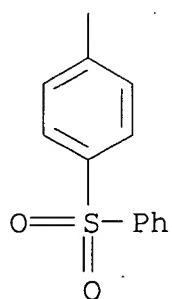
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CN	9-Anthracenamine, 10,10'-(2,5-thiophenediyl)bis[N,N-bis(4-(phenylsulfonyl)phenyl)]- (9CI) (CA INDEX NAME)	

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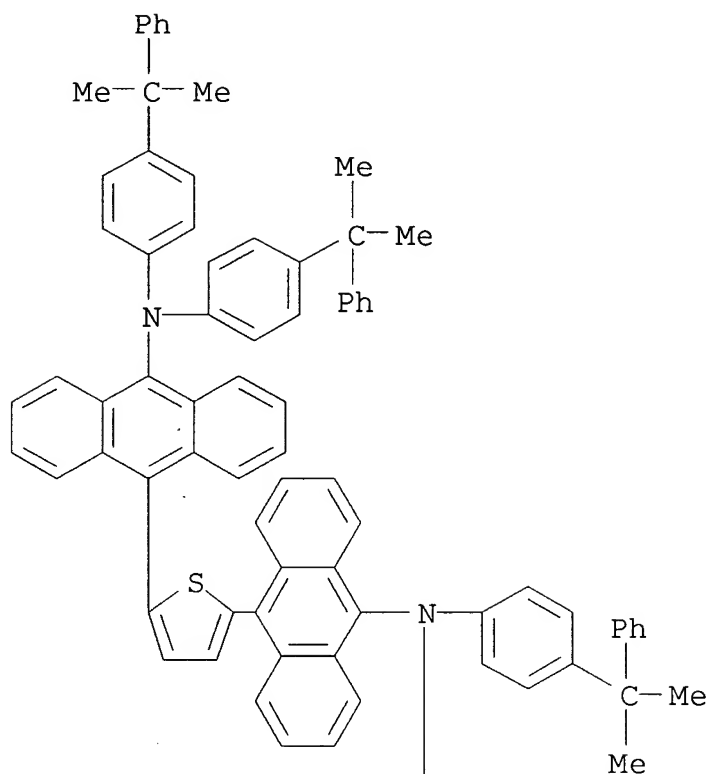


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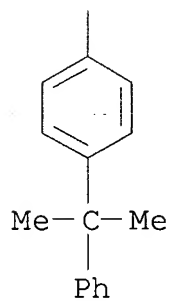


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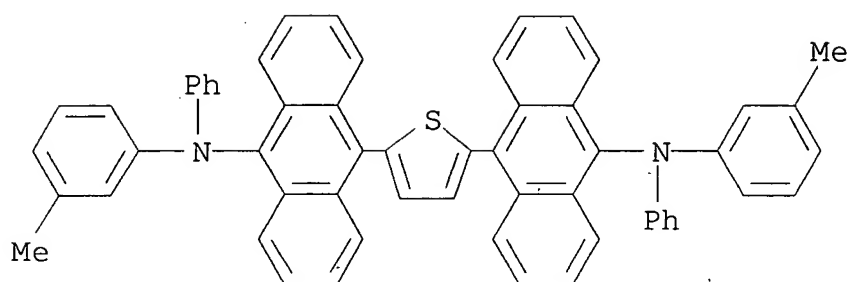
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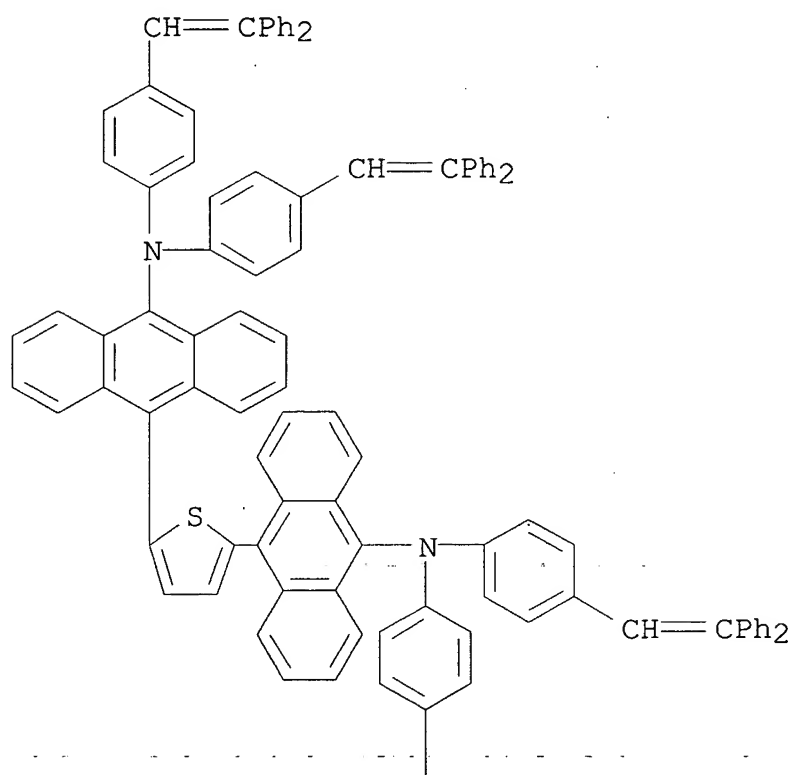
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N-phenyl- (9CI) (CA INDEX NAME)



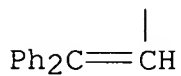
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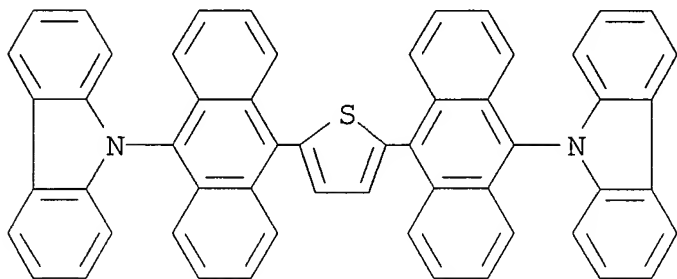


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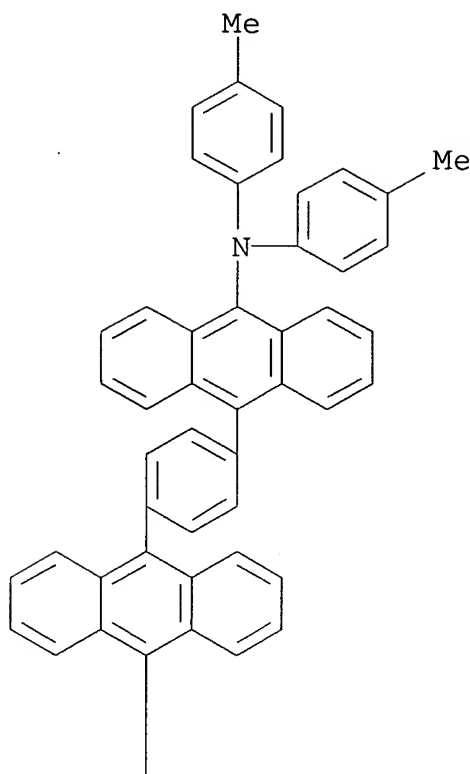
CN 9H-Carbazole, 9,9'-(2,5-thiophenediyl)-10,9-anthracenediyl)bis-(9CI) (CA INDEX NAME)



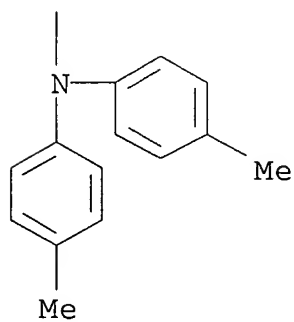
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CN 9-Anthracenamine, 10,10'-(1,4-phenylene)bis[N,N-bis(4-methylphenyl)- (9CI) (CA INDEX NAME)

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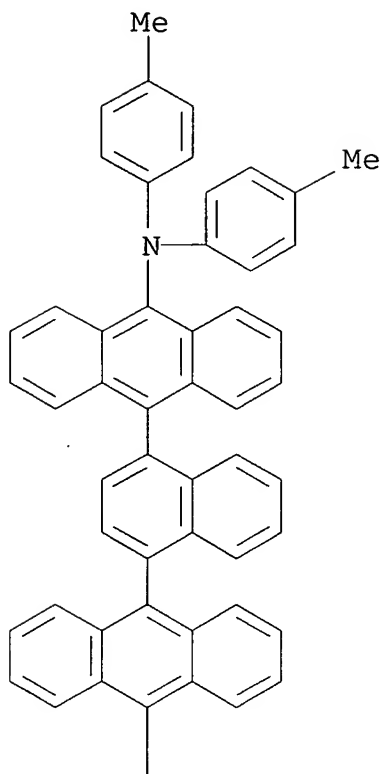


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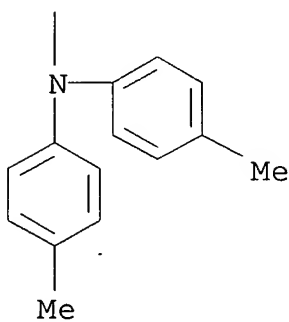


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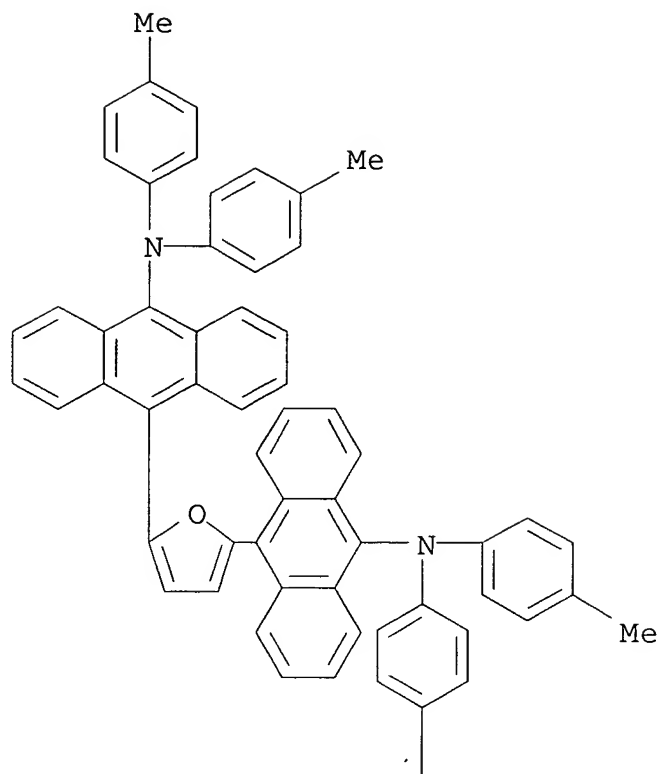
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RN 223726-74-7 CAPLUS  
 CN 9-Anthracenamine, 10,10'-(2,5-furandiyl)bis[N,N-bis(4-methylphenyl)- (9CI) (CA INDEX NAME)]



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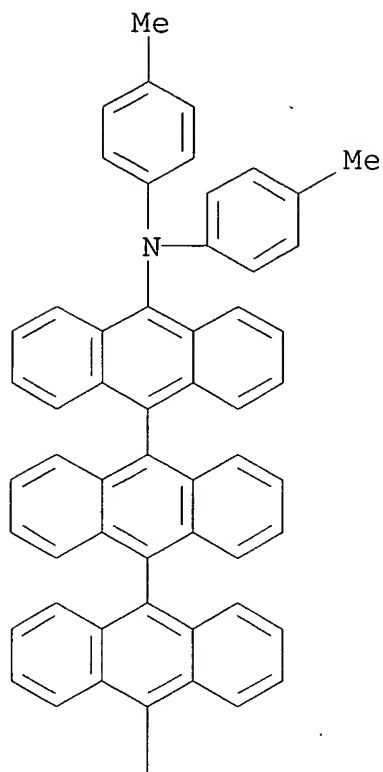


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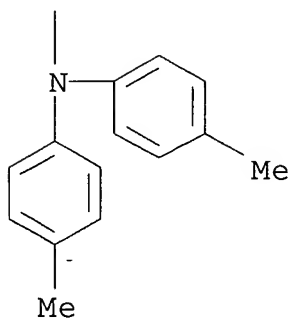
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RN 223726-75-8 CAPLUS  
CN [9,9':10',9''-Teranthracene]-10,10''-diamine, N,N,N',N'-tetrakis(4-methylphenyl)- (9CI) (CA INDEX NAME)

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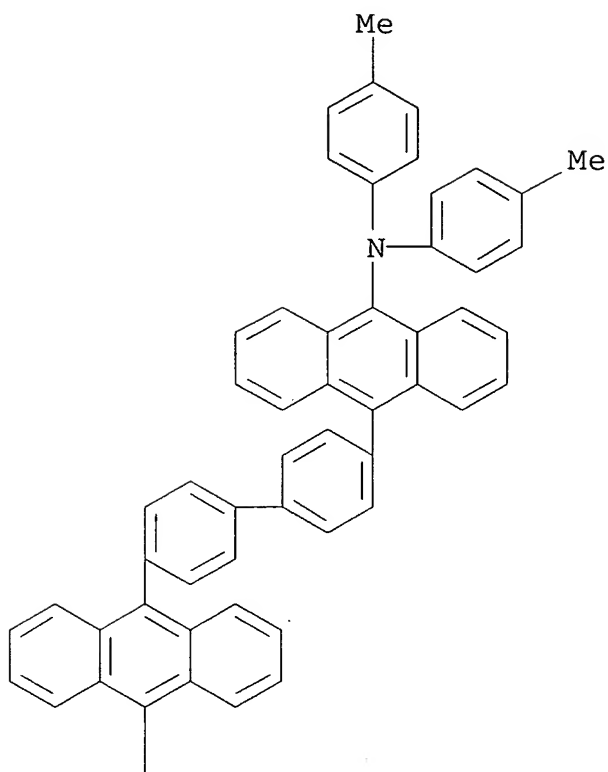


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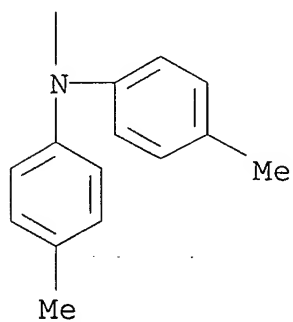


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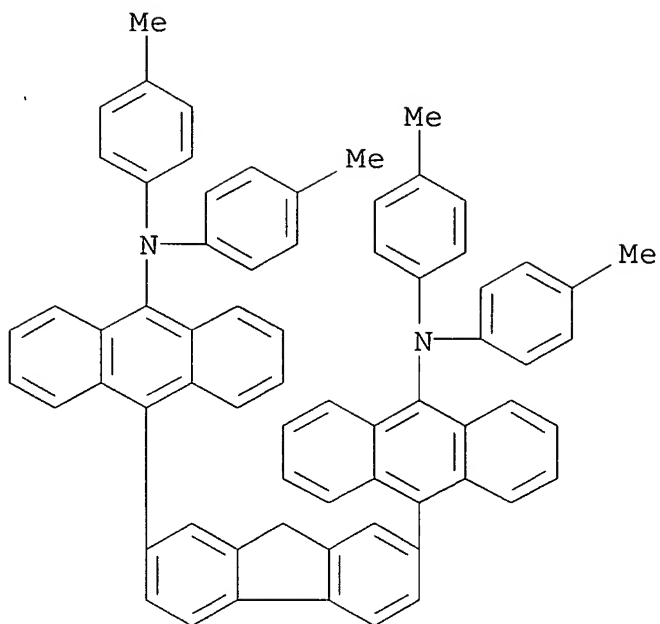
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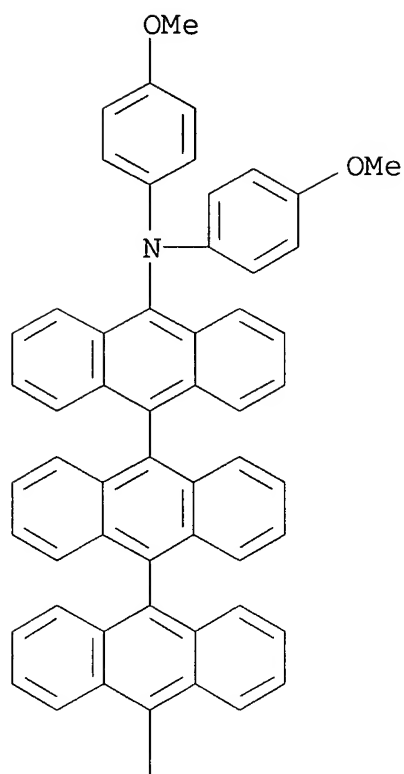
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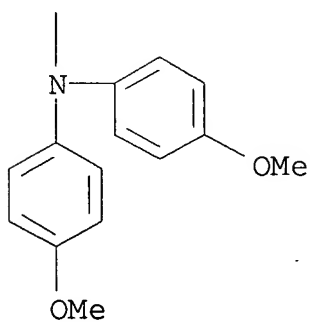
RN 223726-78-1 CAPLUS

CN [9,9':10',9''-Teranthracene]-10,10''-diamine, N,N,N',N'-tetrakis(4-methoxyphenyl)- (9CI) (CA INDEX NAME)

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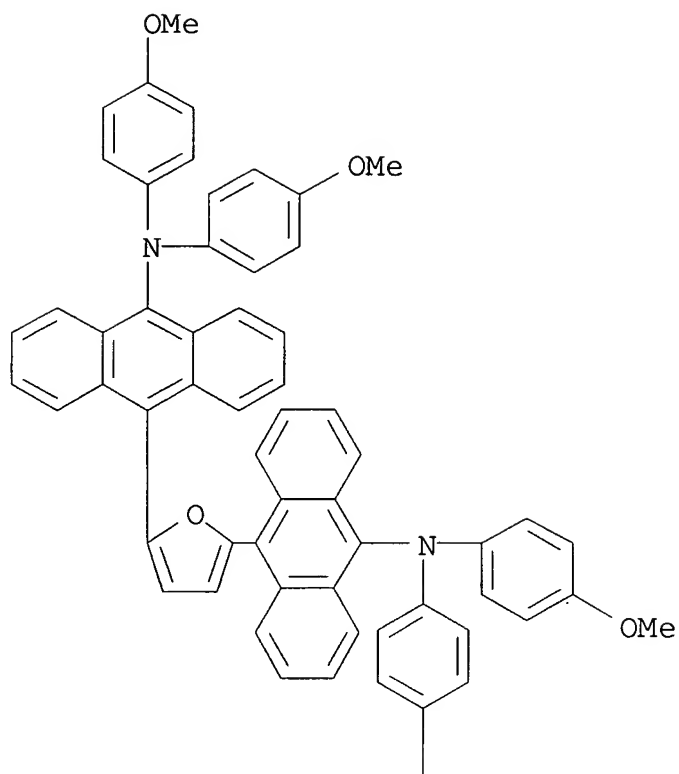


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RN 223726-79-2 CAPLUS  
 CN 9-Anthracenamine, 10,10'-(2,5-furandiyl)bis[N,N-bis(4-methoxyphenyl)- (9CI) (CA INDEX NAME)

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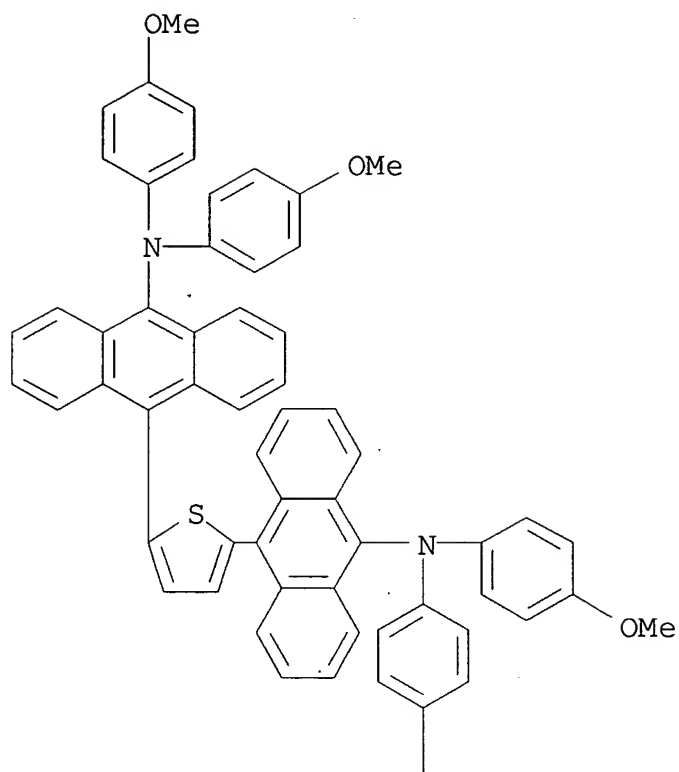


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|  
OMe

RN 223726-80-5 CAPLUS  
CN 9-Anthracenamine, 10,10'-(2,5-thiophenediyl)bis[N,N-bis(4-methoxyphenyl)- (9CI) (CA INDEX NAME)

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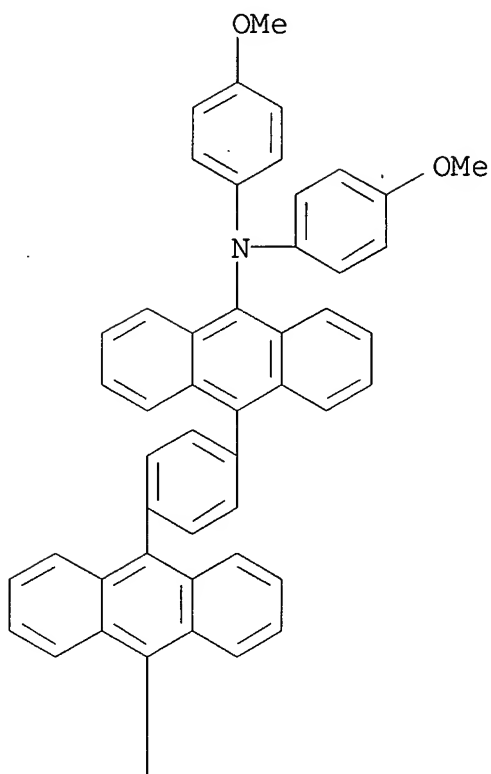


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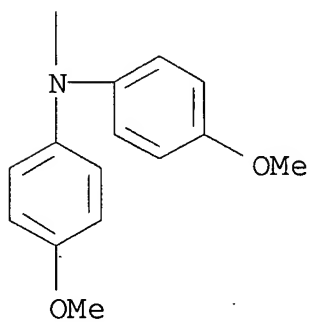
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OMe

RN 223726-81-6 CAPLUS  
CN 9-Anthracenamine, 10,10'-(1,4-phenylene)bis[N,N-bis(4-methoxyphenyl)-(9CI)] (CA INDEX NAME)

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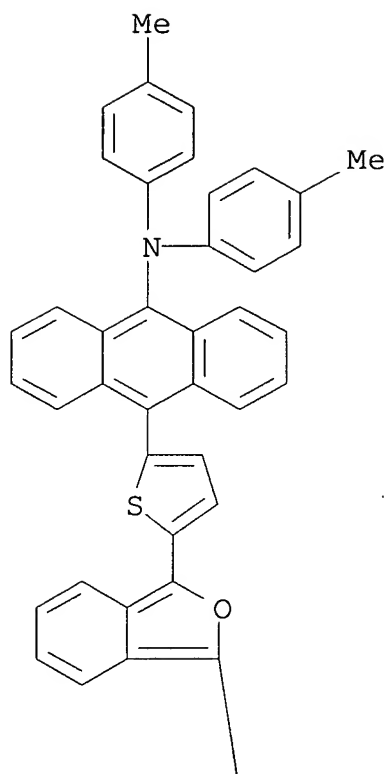
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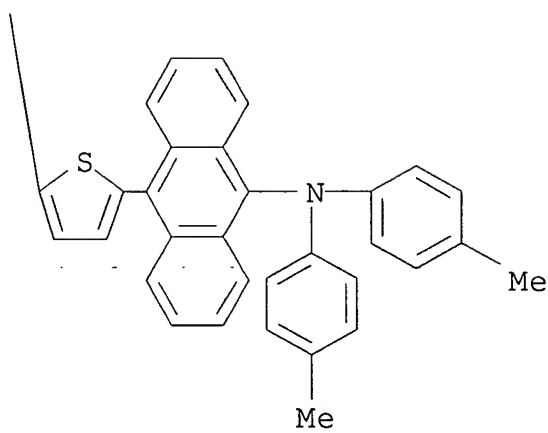
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CN 9-Anthracenamine, 10,10'-(1,3-isobenzofurandiyl)-5,2-thiophenediyl)bis[N,N-bis(4-methylphenyl)-(9CI) (CA INDEX NAME)



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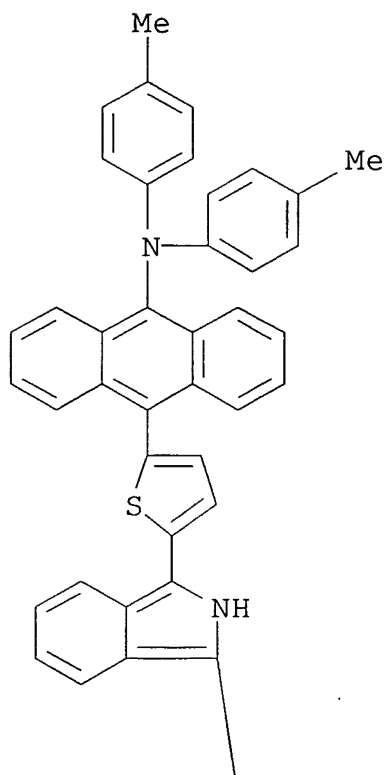


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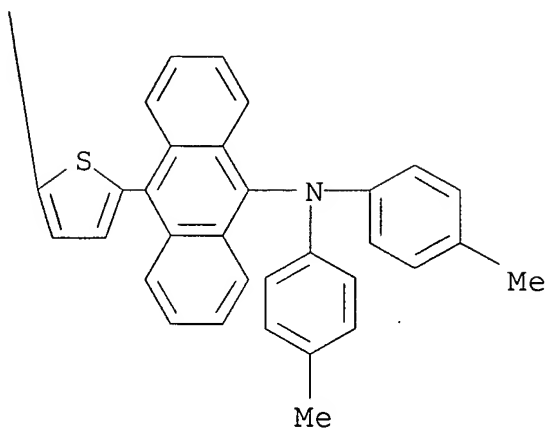


CN 9-Anthracenamine, 10,10'-(2H-isoindole-1,3-diyl-di-5,2-thiophenediyl)bis[N,N-bis(4-methylphenyl)- (9CI) (CA INDEX NAME)

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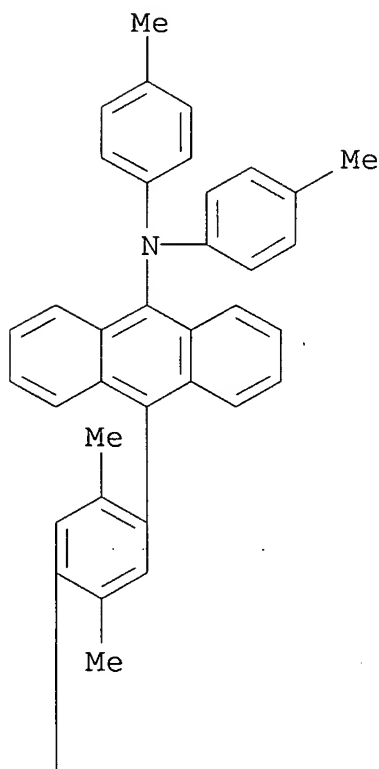


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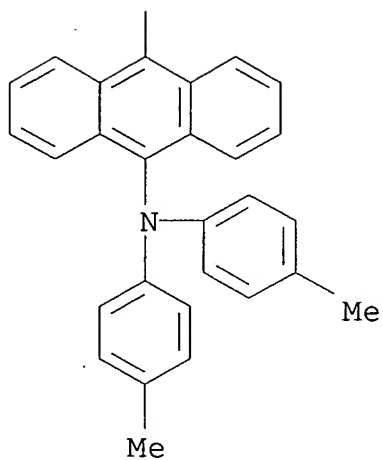


RN 223726-84-9 CAPLUS  
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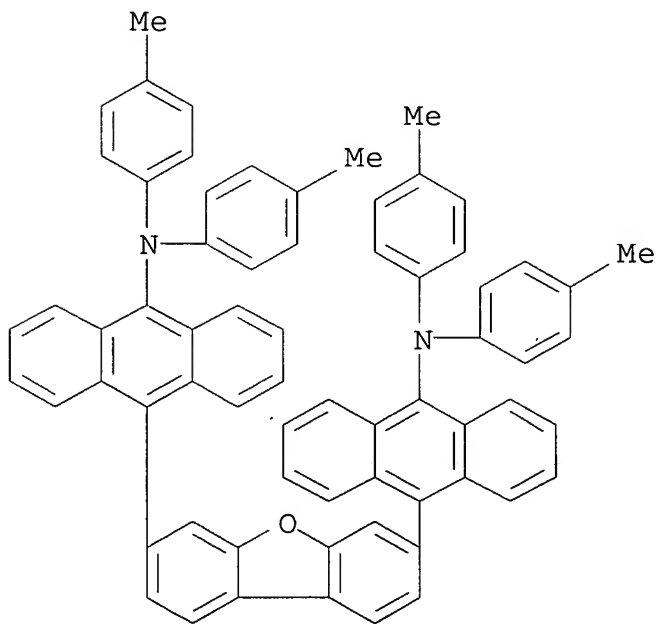


PAGE 2-A



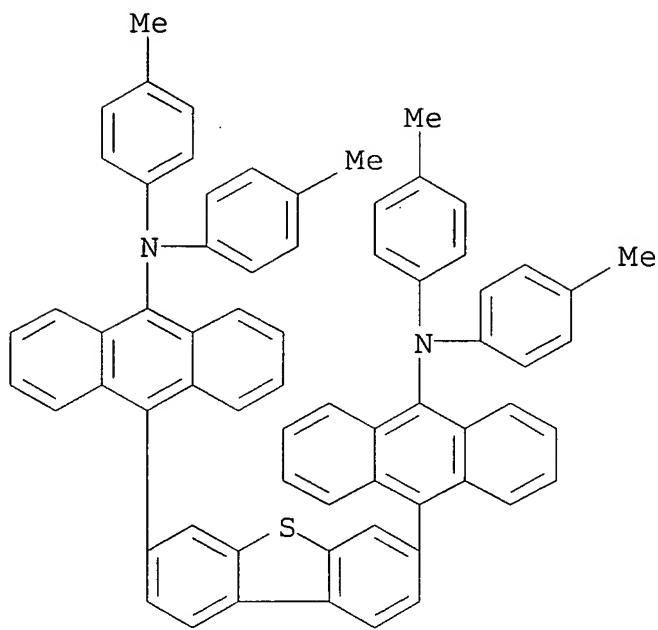
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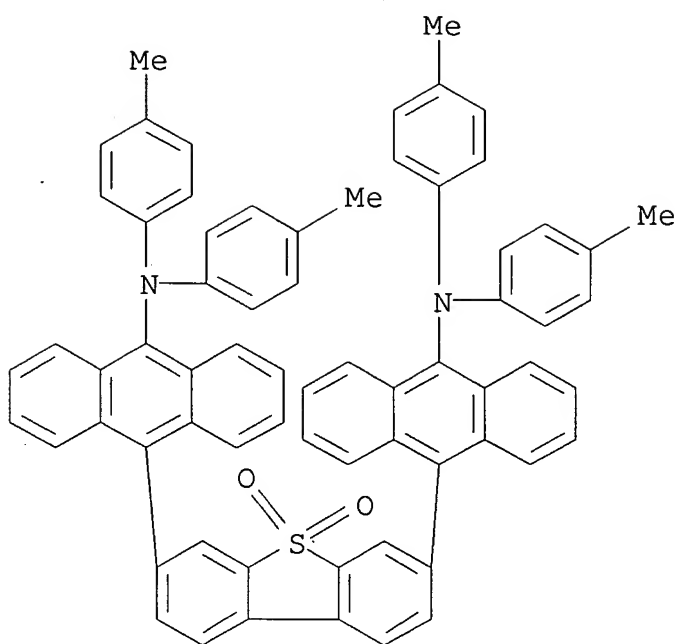
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RN 223726-87-2 CAPLUS

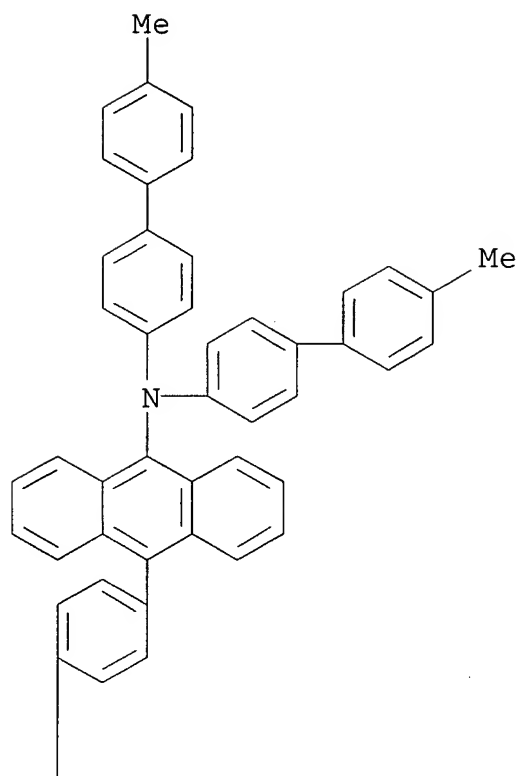
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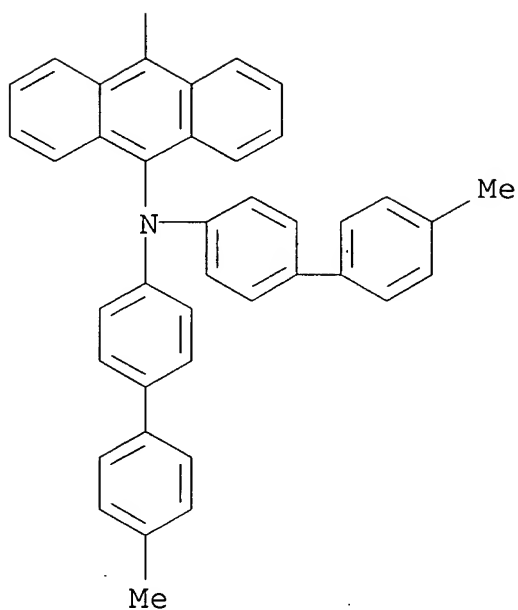
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CN 9-Anthracenamine, 10,10'-(1,4-phenylene)bis[N,N-bis(4'-methyl[1,1'-biphenyl]-4-yl)- (9CI) (CA INDEX NAME)

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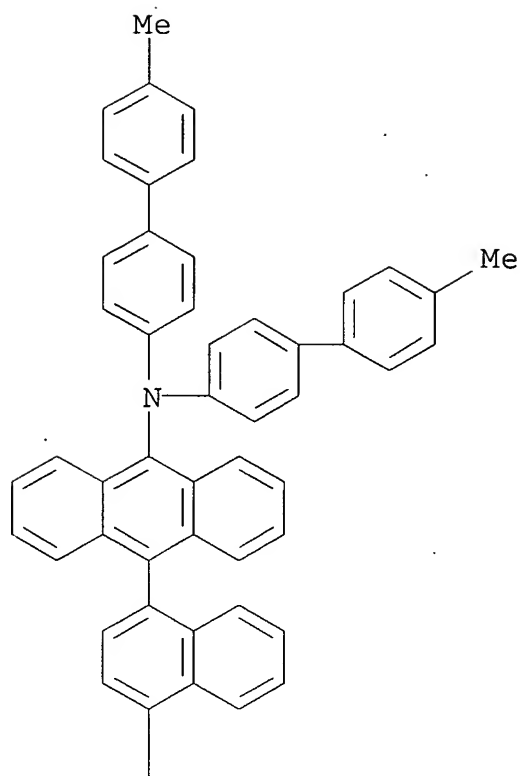
PAGE 2-A



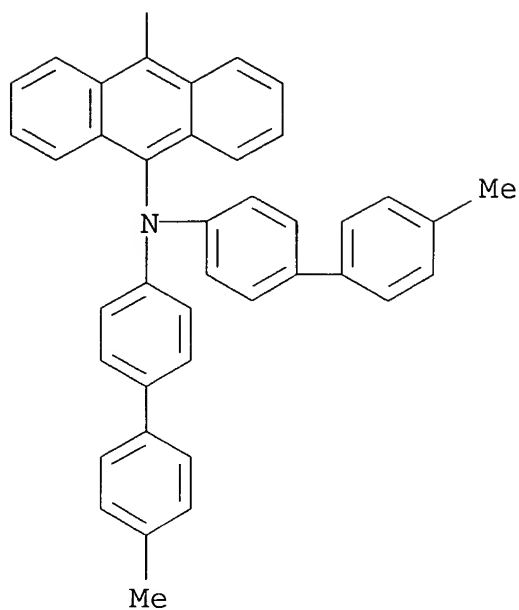
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CN 9-Anthracenamine, 10,10'-(1,4-naphthalenediyl)bis[N,N-bis(4'-methyl[1,1'-biphenyl]-4-yl)- (9CI) \ (CA INDEX NAME)



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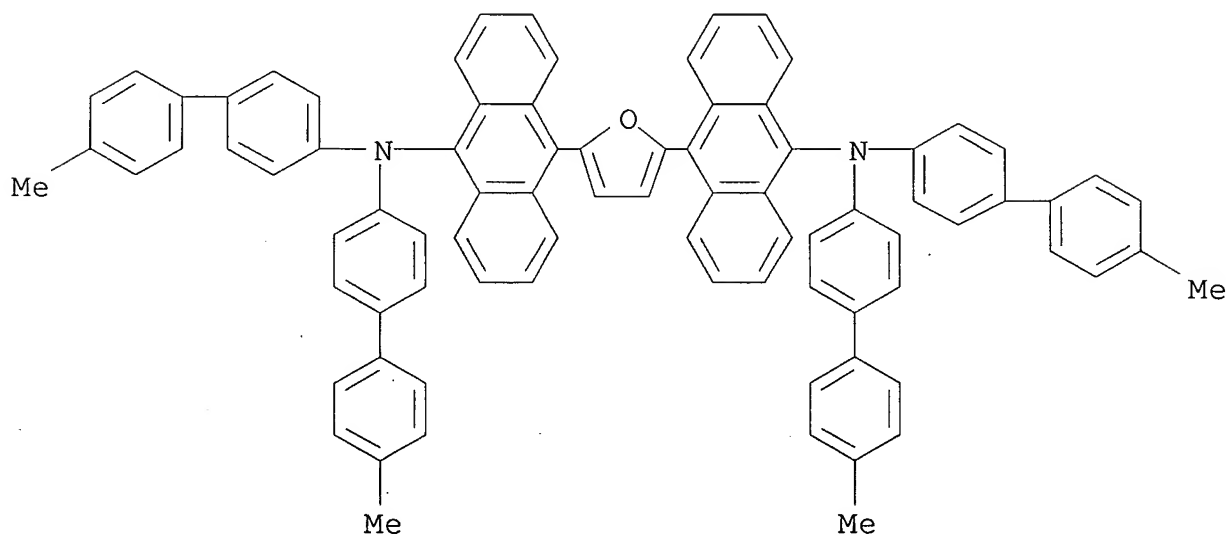


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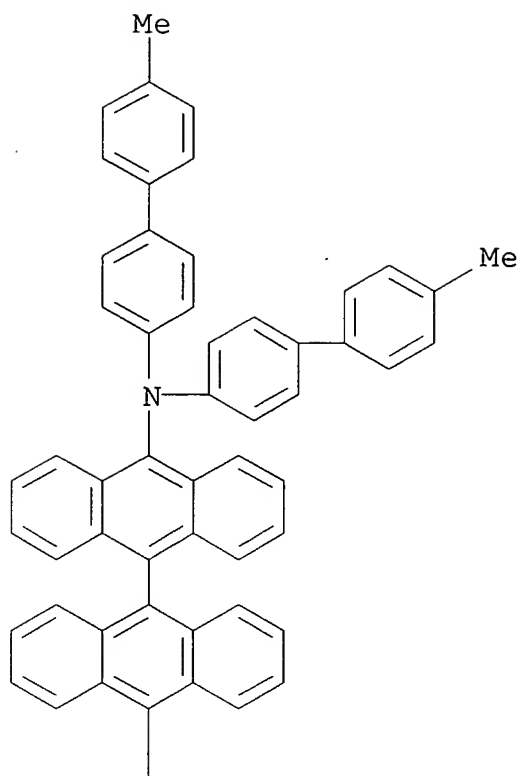
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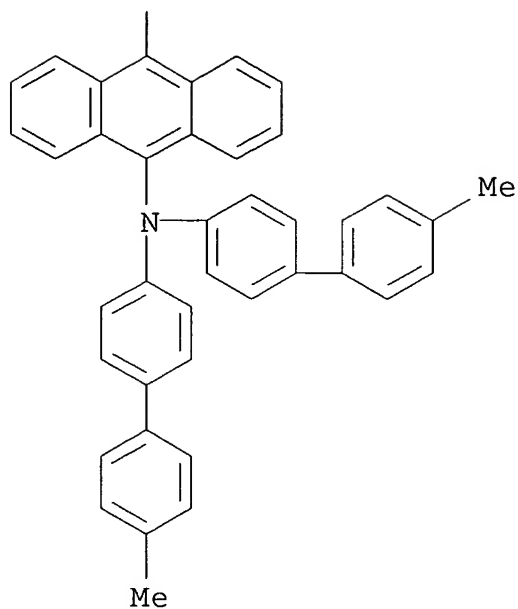
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CN [9,9':10',9''-Teranthracene]-10,10''-diamine, N,N,N',N'-tetrakis(4'-methyl[1,1'-biphenyl]-4-yl)- (9CI) (CA INDEX NAME)

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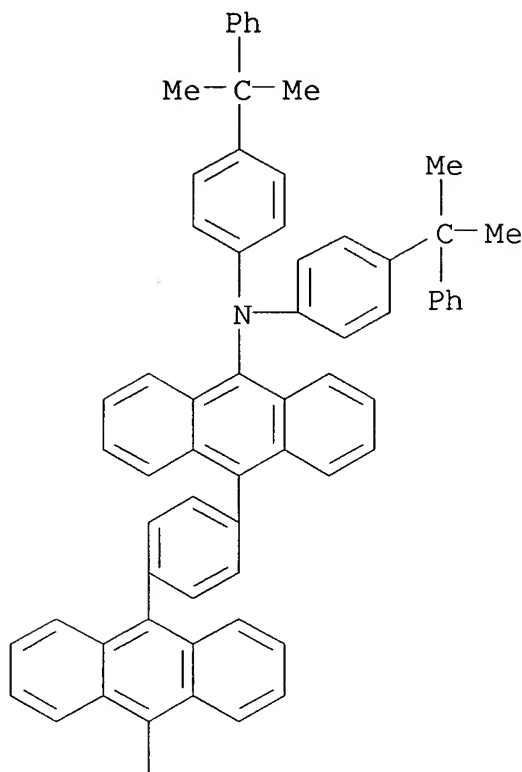
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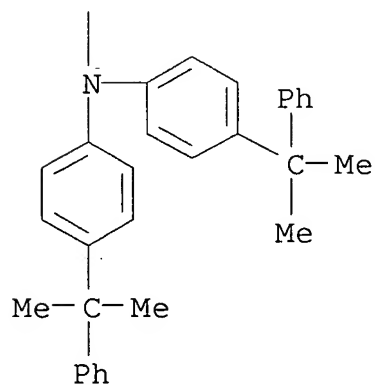
RN 223726-92-9 CAPLUS

CN 9-Anthracenamine, 10,10'-(1,4-phenylene)bis[N,N-bis[4-(1-methyl-1-phenylethyl)phenyl]- (9CI) (CA INDEX NAME)

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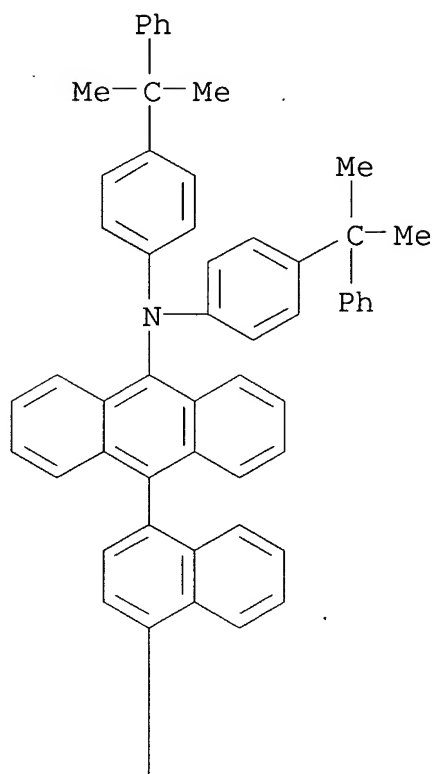
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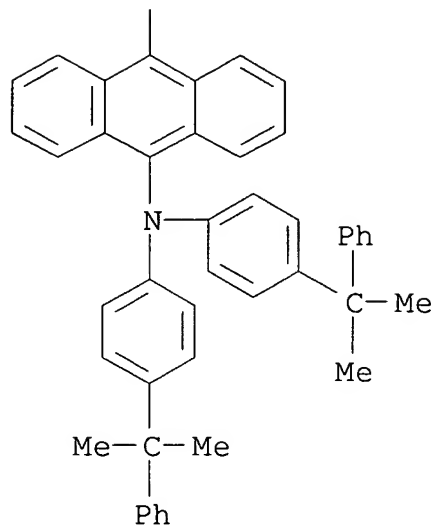
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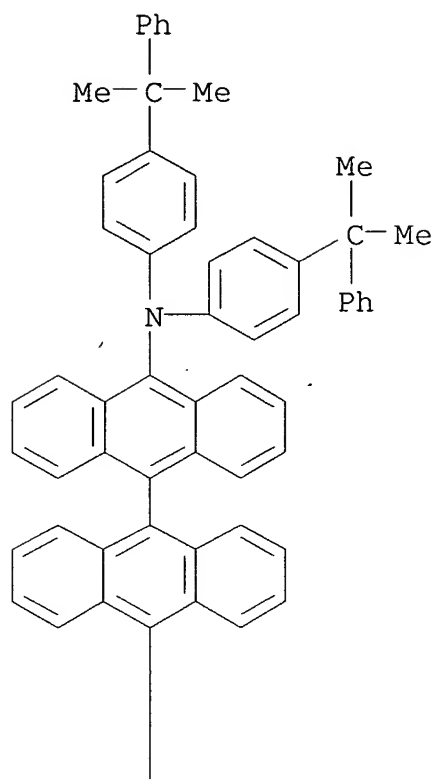


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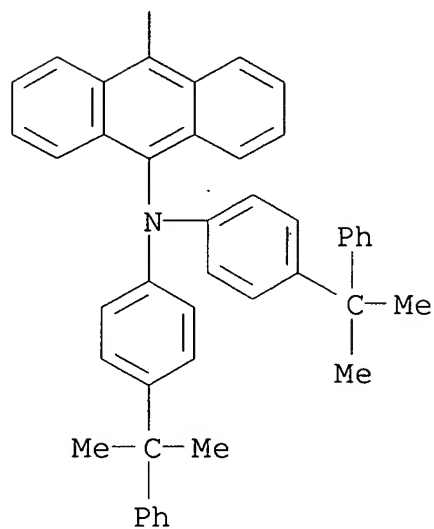
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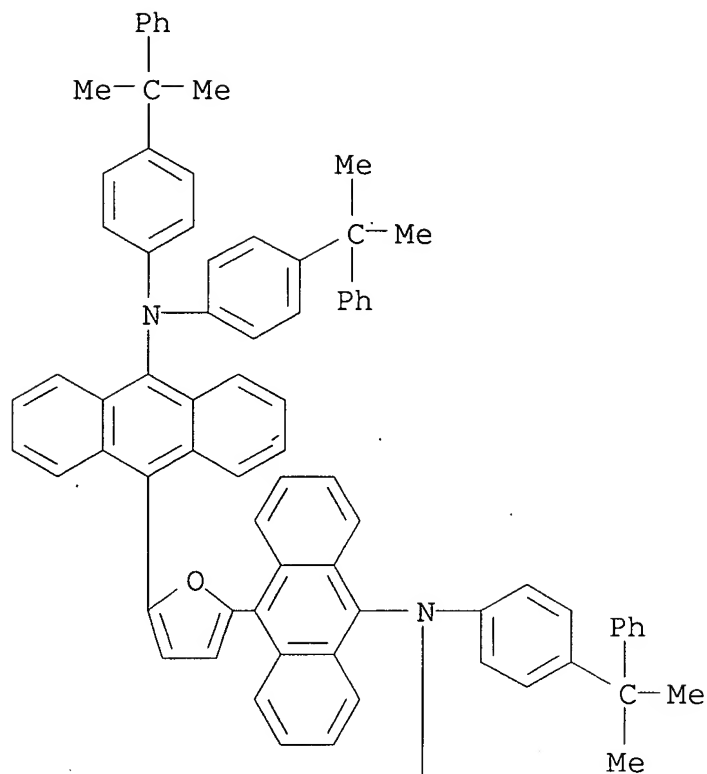


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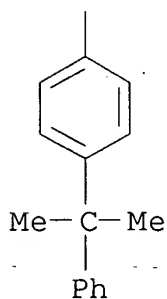


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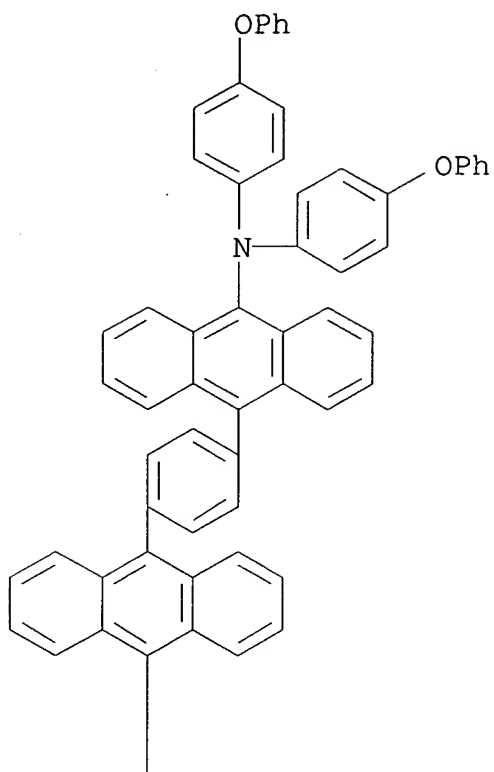


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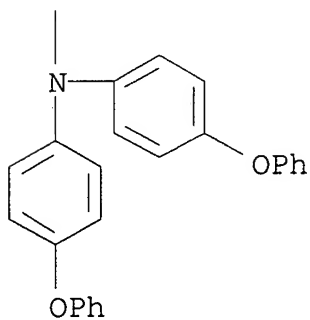


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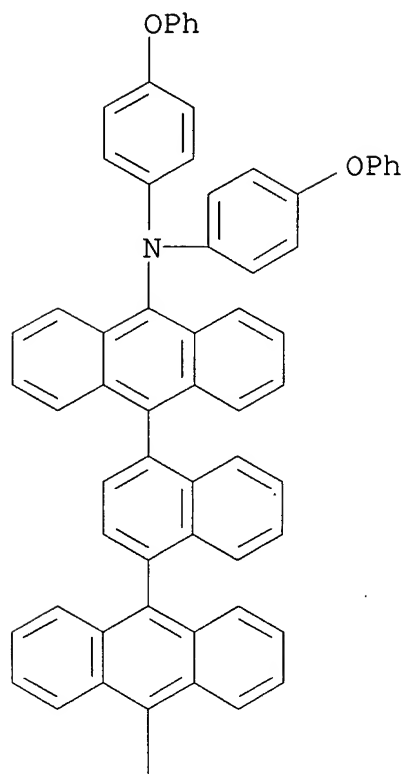


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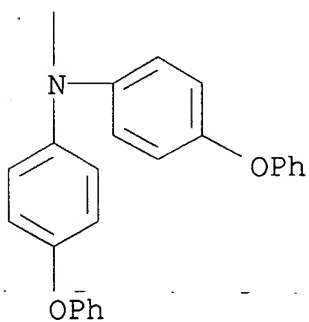


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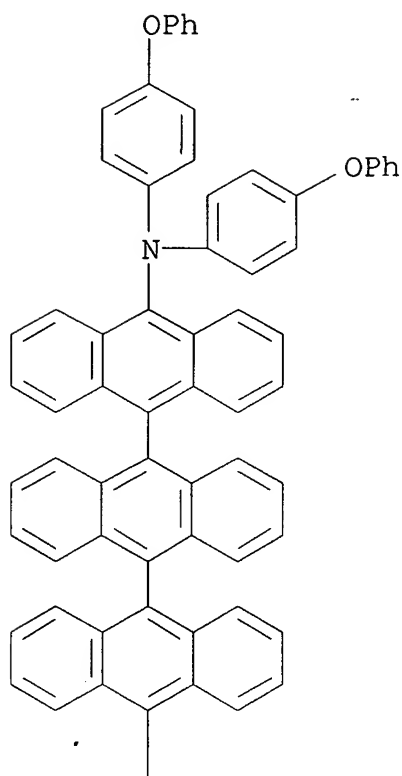


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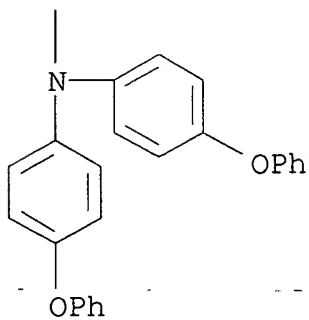


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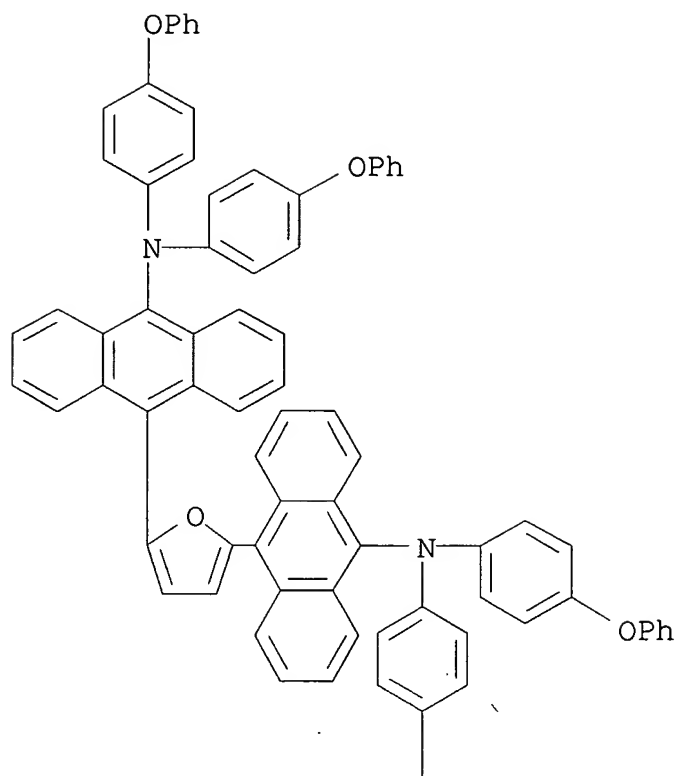


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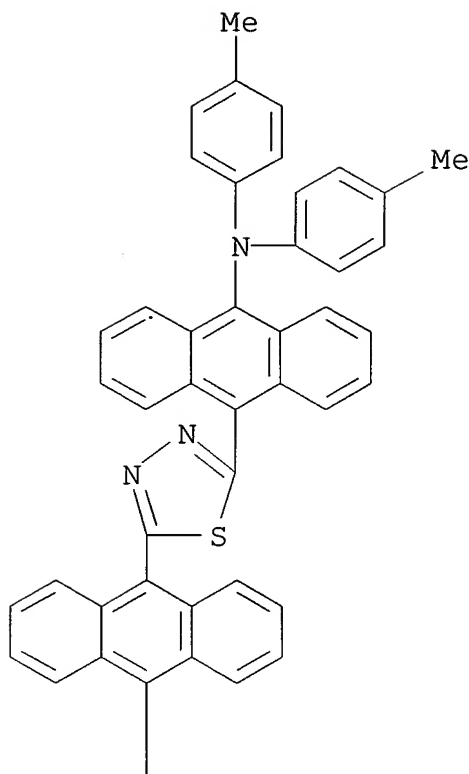


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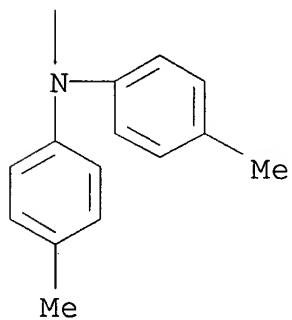
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OPh

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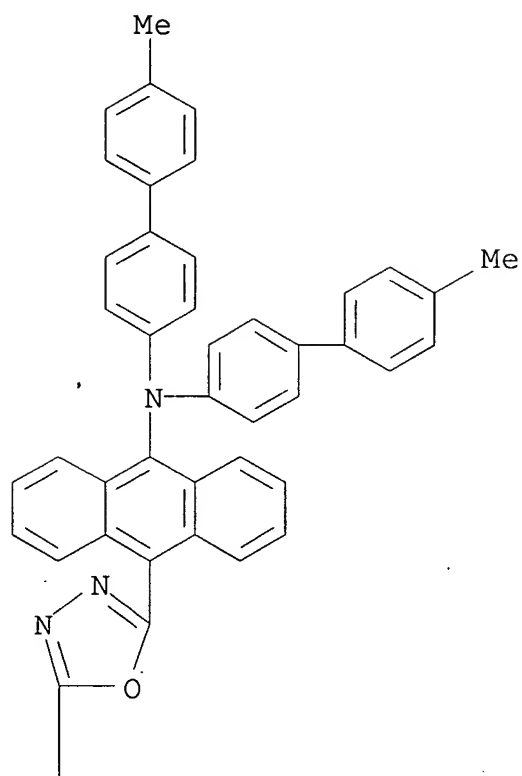


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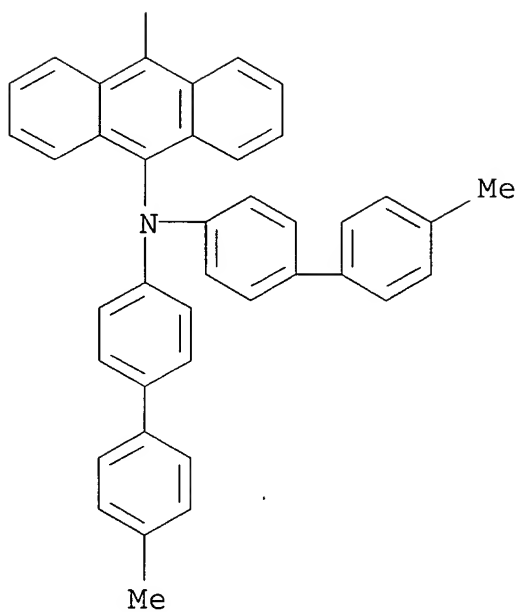
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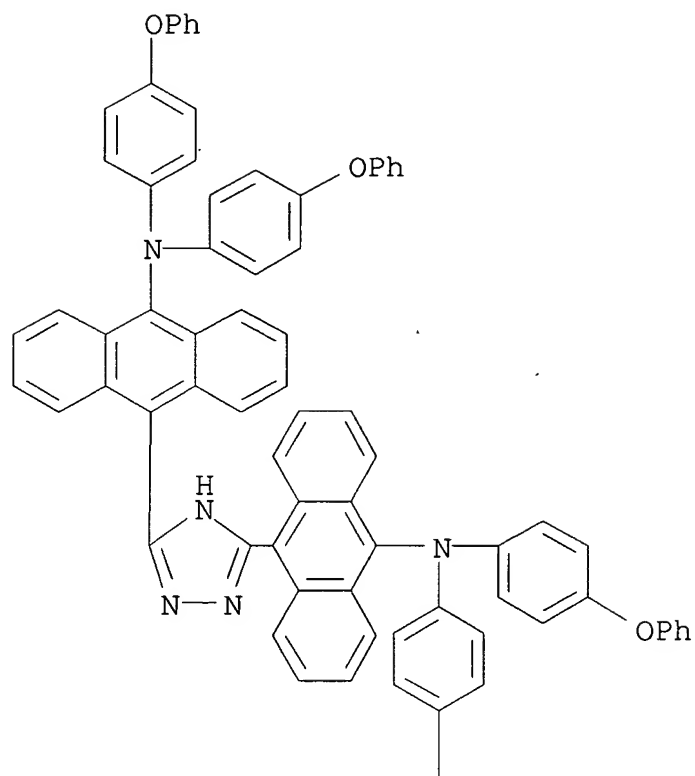


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RN 223727-02-4 CAPLUS  
CN 9-Anthracenamine, 10,10'-(1H-1,2,4-triazole-3,5-diyl)bis[N,N-bis(4-methoxyphenyl)- (9CI) (CA INDEX NAME)

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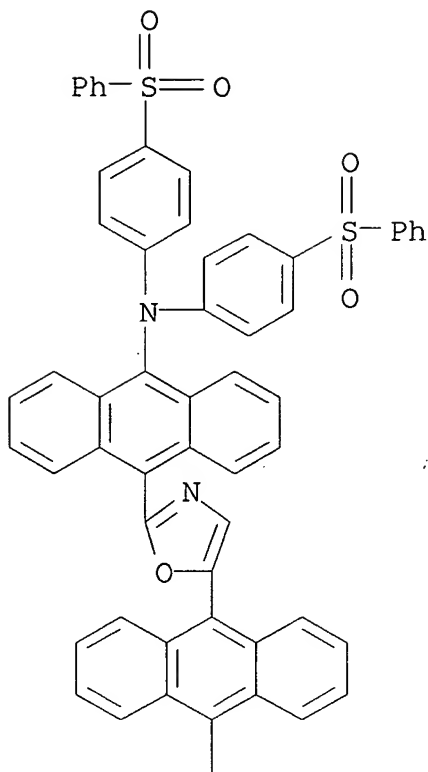


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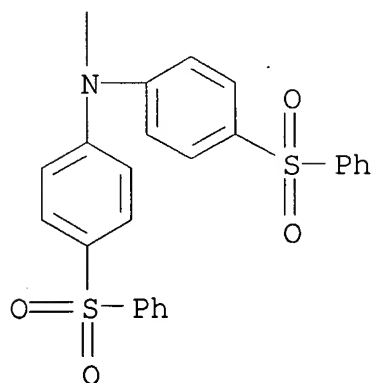
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OPh

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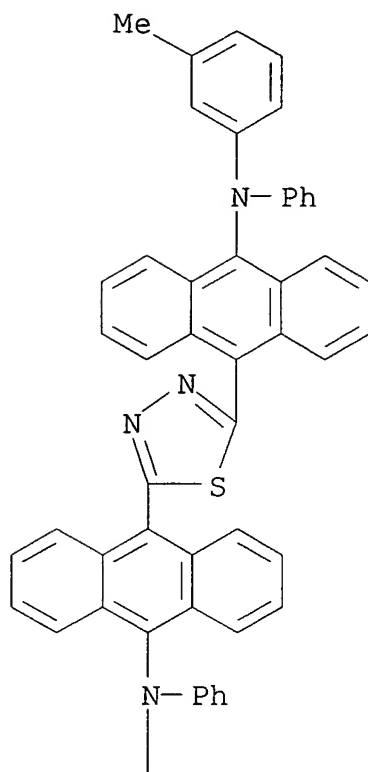
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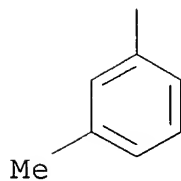
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methylphenyl)-N-phenyl- (9CI) (CA INDEX NAME)

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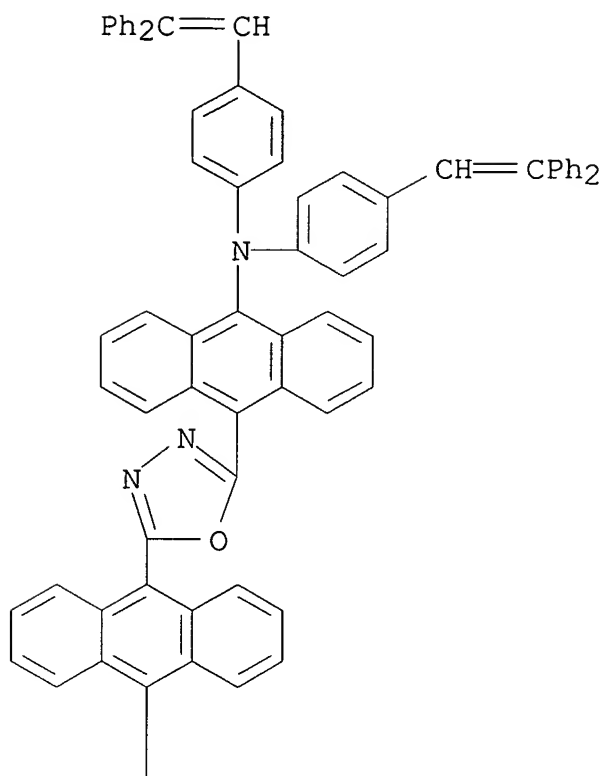


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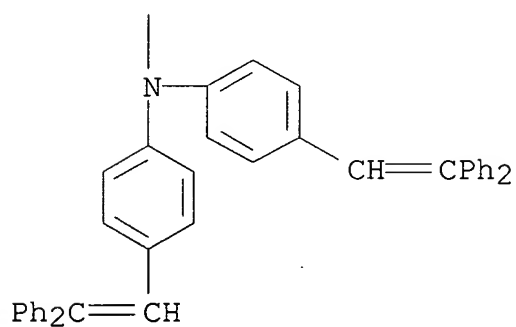


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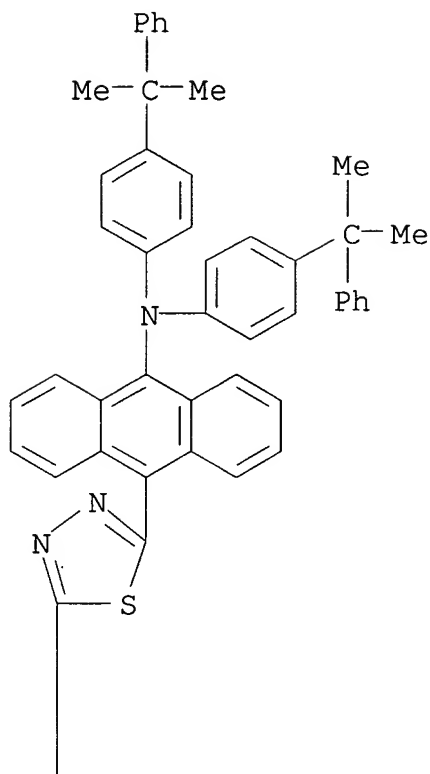


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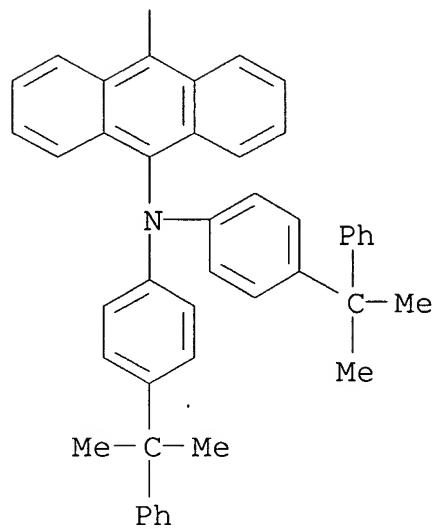


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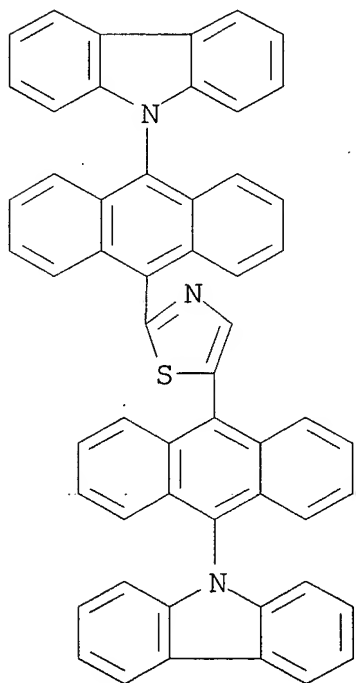
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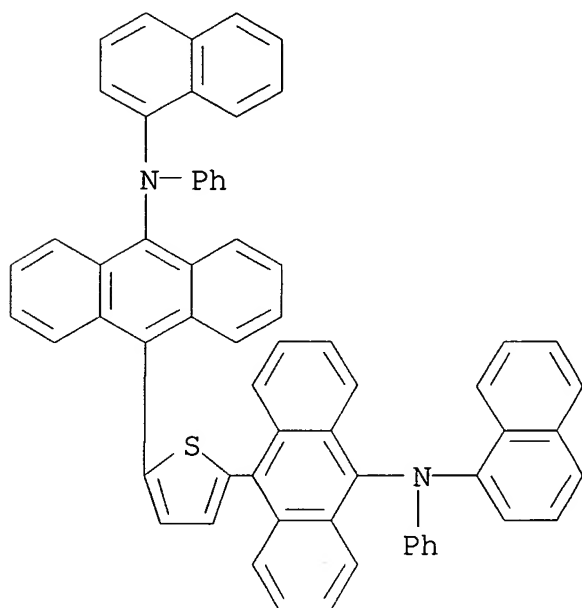


RN 223727-07-9 CAPLUS

CN 9H-Carbazole, 9,9'-(2,5-thiazolediyl-di-10,9-anthracenediyl)bis-  
(9CI) (CA INDEX NAME)

RN 223727-08-0 CAPLUS

CN 9-Anthracenamine, 10,10'-(2,5-thiophenediyl)bis[N-1-naphthalenyl-N-phenyl- (9CI) (CA INDEX NAME)

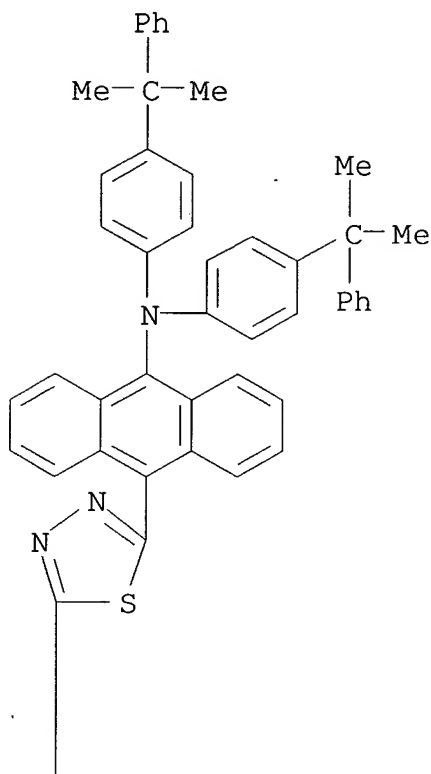


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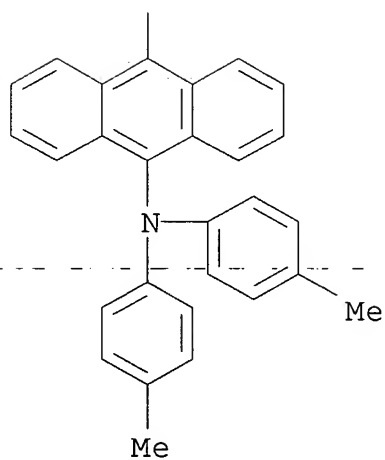
CN 9-Anthracenamine, 10-[5-[10-[bis(4-methylphenyl)amino]-9-anthracenyl]-1,3,4-thiadiazol-2-yl]-N,N-bis[4-(1-methyl-1-phenylethyl)phenyl]- (9CI) (CA INDEX NAME)



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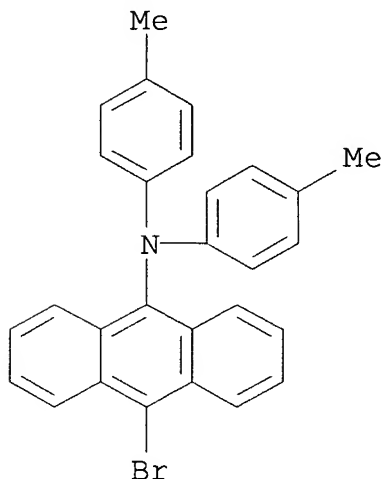


IT 223726-59-8 223726-60-1

(organic electroluminescent device containing anthracene derivative)

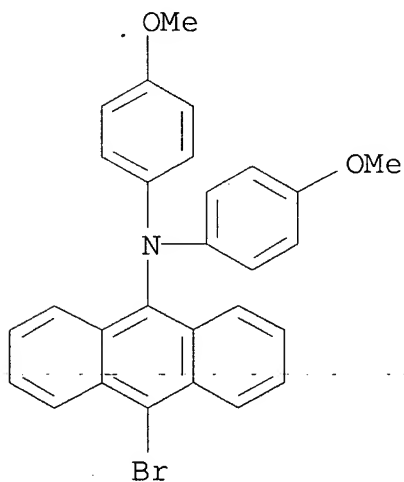
RN 223726-59-8 CAPLUS

CN 9-Anthracenamine, 10-bromo-N,N-bis(4-methylphenyl)- (9CI) (CA INDEX NAME)



RN 223726-60-1 CAPLUS

CN 9-Anthracenamine, 10-bromo-N,N-bis(4-methoxyphenyl)- (9CI) (CA INDEX NAME)



IC ICM H05B033-14

ICS C09K011-06

CC 73-12 (Optical, Electron, and Mass Spectroscopy and

## Other Related Properties)

IT 223726-61-2P 223726-62-3P

(organic electroluminescent device containing anthracene derivative)

IT 223726-64-5 223726-66-7 223726-67-8  
223726-68-9 223726-69-0 223726-70-3  
223726-71-4 223726-72-5 223726-73-6  
223726-74-7 223726-75-8 223726-76-9  
223726-77-0 223726-78-1 223726-79-2  
223726-80-5 223726-81-6 223726-82-7  
223726-83-8 223726-84-9 223726-85-0  
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223726-89-4 223726-90-7 223726-91-8  
223726-92-9 223726-93-0 223726-94-1  
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223727-01-3 223727-02-4 223727-03-5  
223727-04-6 223727-05-7 223727-06-8  
223727-07-9 223727-08-0 223727-09-1

(organic electroluminescent device containing anthracene derivative)

IT 83-53-4, 1,4-Dibromonaphthalene 3141-27-3, 2,5-Dibromothiophene  
223726-59-8 223726-60-1

(organic electroluminescent device containing anthracene derivative)

L40 ANSWER 59 OF 65 CAPLUS COPYRIGHT 2005 ACS on STN

ACCESSION NUMBER: 1999:260962 CAPLUS

DOCUMENT NUMBER: 130:344892

TITLE: Organic electroluminescent material containing anthracene derivative and organic electroluminescent device with it

INVENTOR(S): Tamano, Michiko; Maki, Shinichiro; Onikubo, Shunichi; Okutsu, Satoshi; Enokida, Toshio

PATENT ASSIGNEE(S): Toyo Ink Mfg. Co., Ltd., Japan

SOURCE: Jpn. Kokai Tokkyo Koho, 22 pp.

CODEN: JKXXAF

DOCUMENT TYPE: Patent

LANGUAGE: Japanese

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 11111458	A2	19990423	JP 1997-264468	1997 0929

PRIORITY APPLN. INFO.:

JP 1997-264468

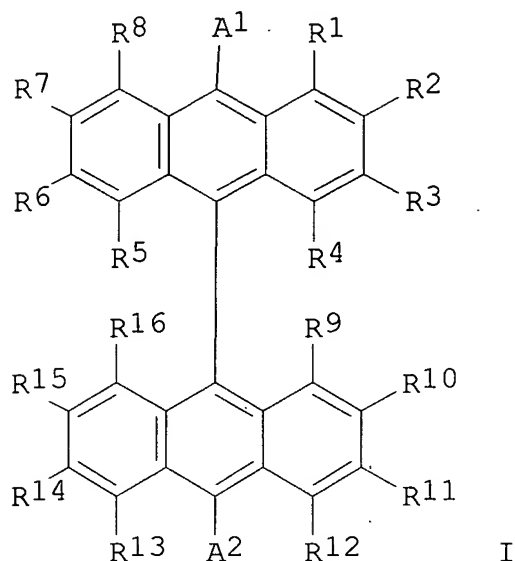
1997

0929

OTHER SOURCE(S):

MARPAT 130:344892

GI



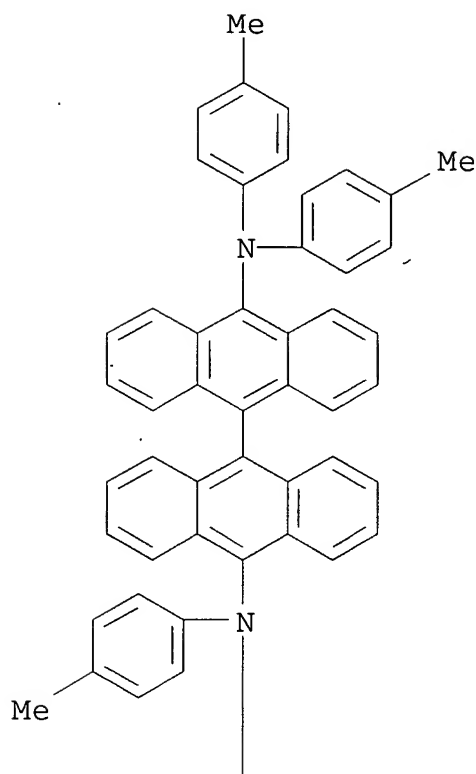
AB The material comprises an anthracene derivative having a formula I (A1, 2 = alkyl, alkoxy, aryloxy, condensed polycyclic, alkylamino, arylamino; R1-16 = H, halogen, cyano, NO<sub>2</sub>, alkyl, alkoxy, aryloxy, alkylthio, arylthio, cyclic group, NH<sub>2</sub>; R1-16 may bond to form a ring). The device has a **light-emitting layer**-containing plural organic compound thin films sandwiched between a pair of electrodes, at least one of the films contains the material. The device shows high luminance with efficiency and long life.

IT 223735-62-4P 223735-63-5P 223735-64-6P  
(**light-emitting** material containing anthracene derivative for electroluminescent device)

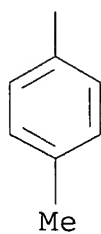
RN 223735-62-4 CAPLUS

CN [9,9'-Bianthracene]-10,10'-diamine, N,N,N',N'-tetrakis(4-methylphenyl)- (9CI) (CA INDEX NAME)

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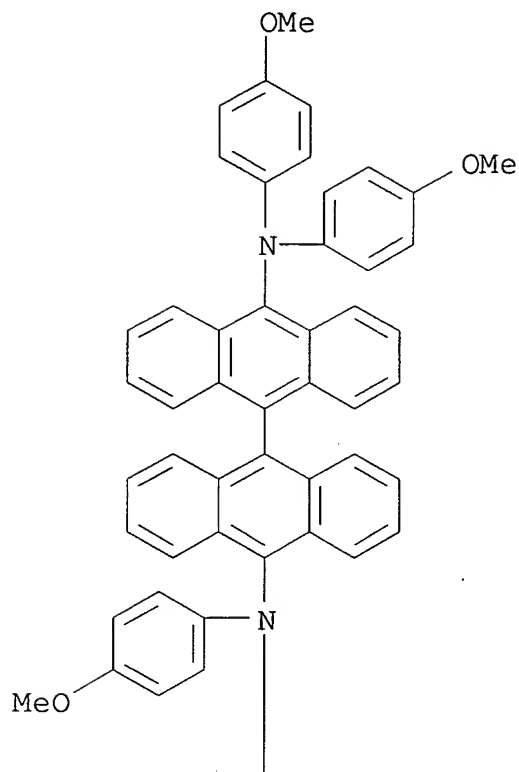


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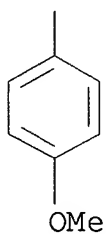


RN. 223735-63-5 CAPLUS  
CN [9,9'-Bianthracene]-10,10'-diamine, N,N,N',N'-tetrakis(4-methoxyphenyl)- (9CI) (CA INDEX NAME)

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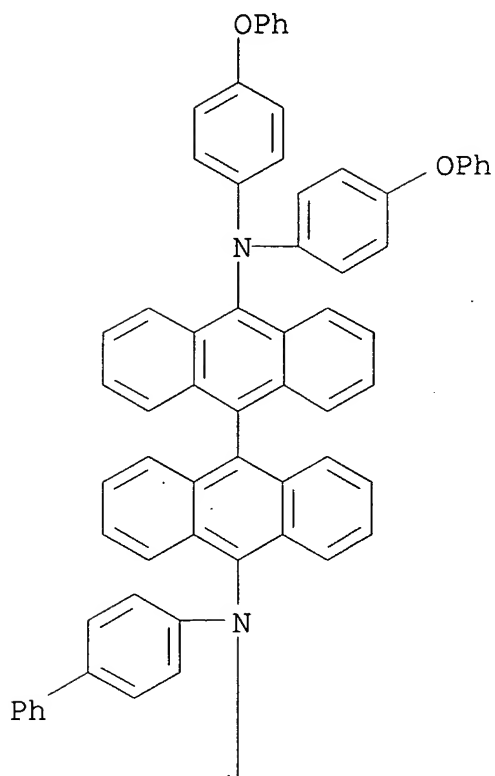


PAGE 2-A

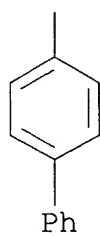


RN 223735-64-6 CAPLUS  
CN [9,9'-Bianthracene]-10,10'-diamine, N,N-bis([1,1'-biphenyl]-4-yl)-  
N',N'-bis(4-phenoxyphenyl)- (9CI) (CA INDEX NAME)

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IT 10294-75-4 120335-70-8 223735-31-7  
 223735-32-8 223735-33-9 223735-34-0  
 223735-35-1 223735-36-2 223735-37-3  
 223735-38-4 223735-39-5 223735-40-8  
 223735-41-9 223735-42-0 223735-43-1  
 223735-44-2 223735-45-3 223735-46-4  
 223735-47-5 223735-48-6 223735-49-7

223735-50-0 223735-52-2 223735-53-3

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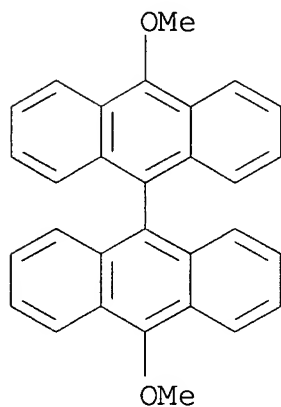
223735-61-3 224051-93-8, 9,9':10',9'':10'',9'''-

Quateranthracene

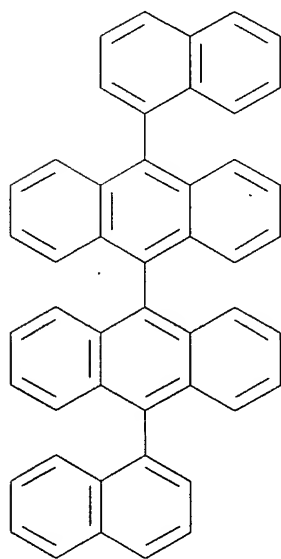
(light-emitting material containing anthracene  
derivative for electroluminescent device)

RN 10294-75-4 CAPLUS

CN 9,9'-Bianthracene, 10,10'-dimethoxy- (9CI) (CA INDEX NAME)



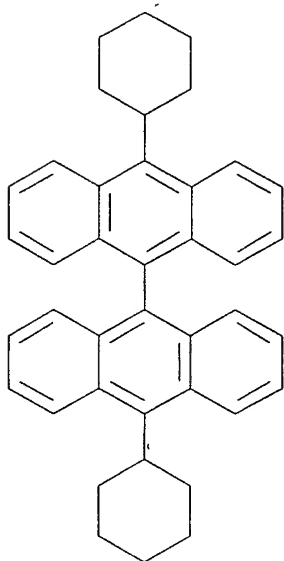
RN 120335-70-8 CAPLUS

CN 9,9'-Bianthracene, 10,10'-di-1-naphthalenyl- (9CI) (CA INDEX  
NAME)



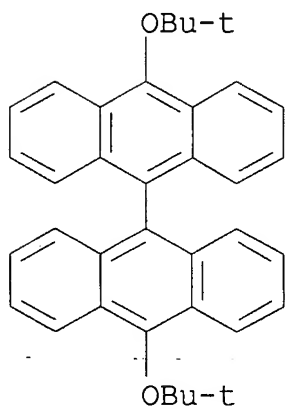
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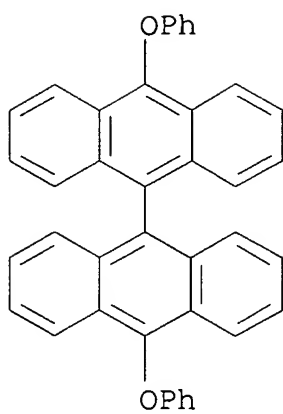
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CN 9,9'-Bianthrane, 10,10'-bis(1,1-dimethylethoxy)- (9CI) (CA INDEX NAME)



RN 223735-33-9 CAPLUS

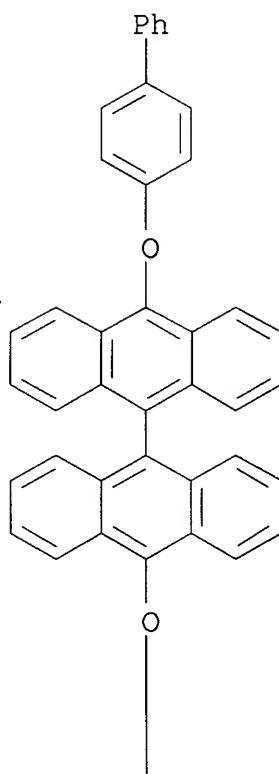
CN 9,9'-Bianthrane, 10,10'-diphenoxy- (9CI) (CA INDEX NAME)



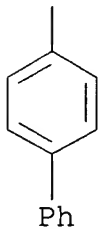
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INDEX NAME)

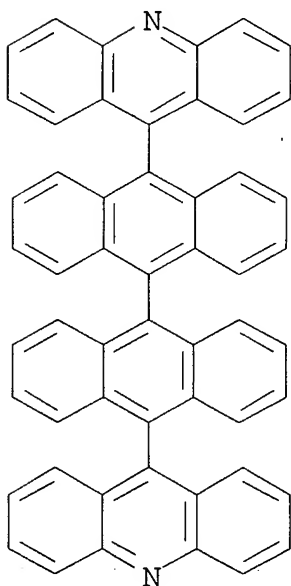
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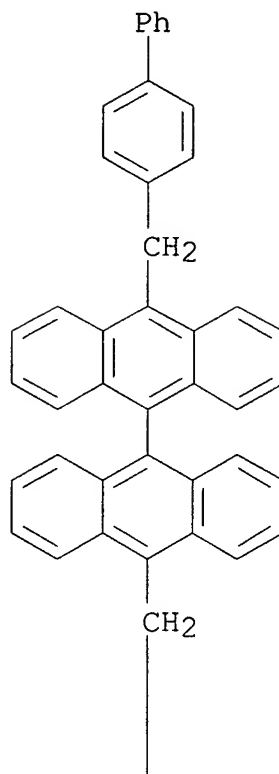


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CN Acridine, 9,9'-[9,9'-bianthracene]-10,10'-diylbis- (9CI) (CA  
INDEX NAME)

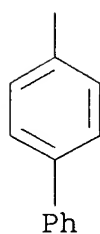


RN 223735-36-2 CAPLUS  
CN 9,9'-Bianthracene, 10,10'-bis([1,1'-biphenyl]-4-ylmethyl)- (9CI)  
(CA INDEX NAME)

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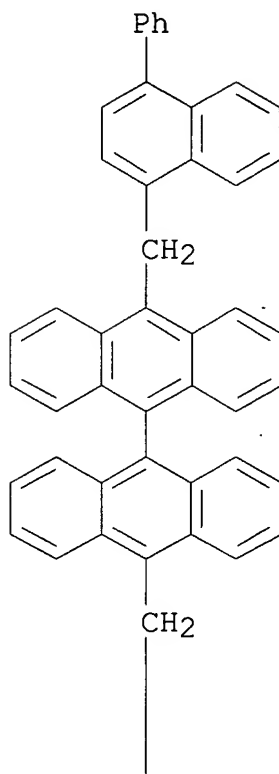


PAGE 2-A

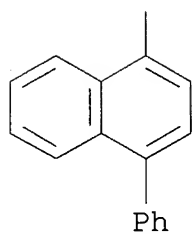


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 (9CI) (CA INDEX NAME)

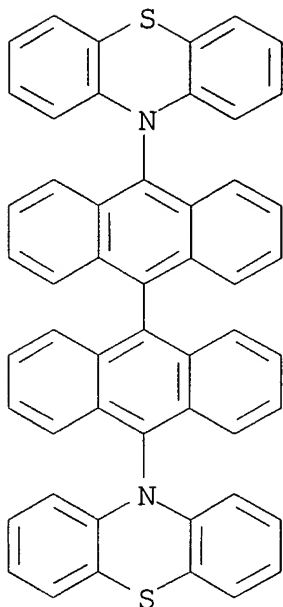
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PAGE 2-A

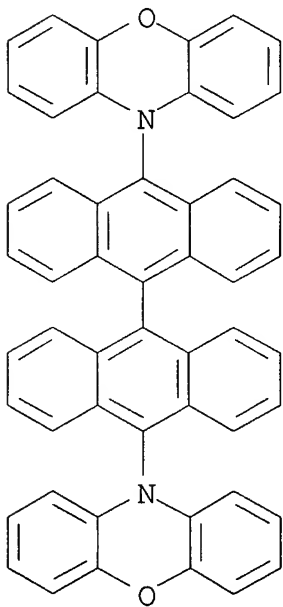


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 (9CI) (CA INDEX NAME)



RN 223735-39-5 CAPLUS

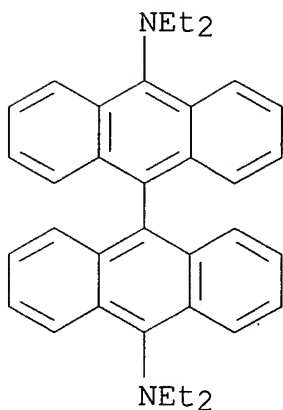
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(CA INDEX NAME)



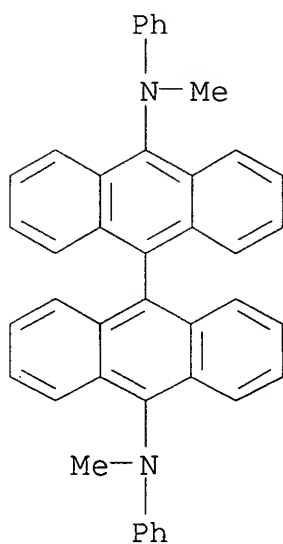
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CN [9,9'-Bianthracene]-10,10'-diamine, N,N,N',N'-tetraethyl- (9CI)

(CA INDEX NAME)

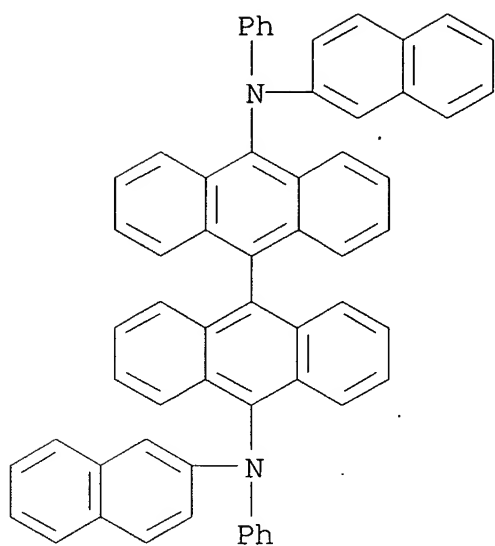


RN 223735-41-9 CAPLUS

CN [9,9'-Bianthracene]-10,10'-diamine, N,N'-dimethyl-N,N'-diphenyl-  
(9CI) (CA INDEX NAME)

RN 223735-42-0 CAPLUS

CN [9,9'-Bianthracene]-10,10'-diamine, N,N'-di-2-naphthalenyl-N,N'-  
diphenyl- (9CI) (CA INDEX NAME)

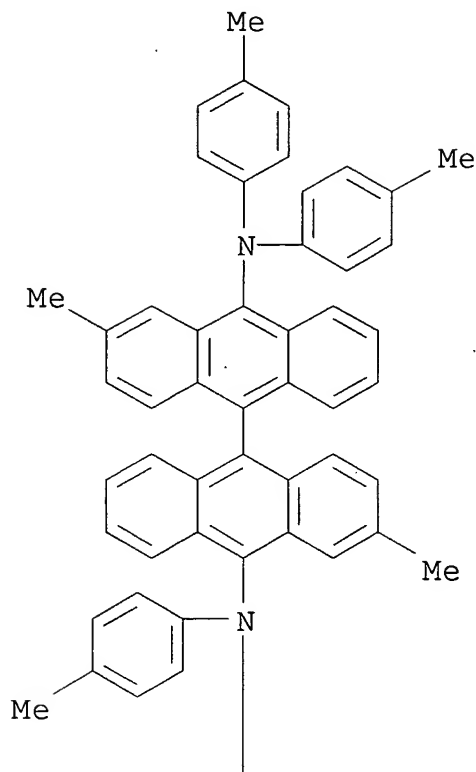


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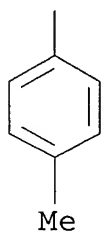
CN [9,9'-Bianthracene]-10,10'-diamine, 3,3'-dimethyl-N,N,N',N'-  
tetrakis(4-methylphenyl)- (9CI) (CA INDEX NAME)



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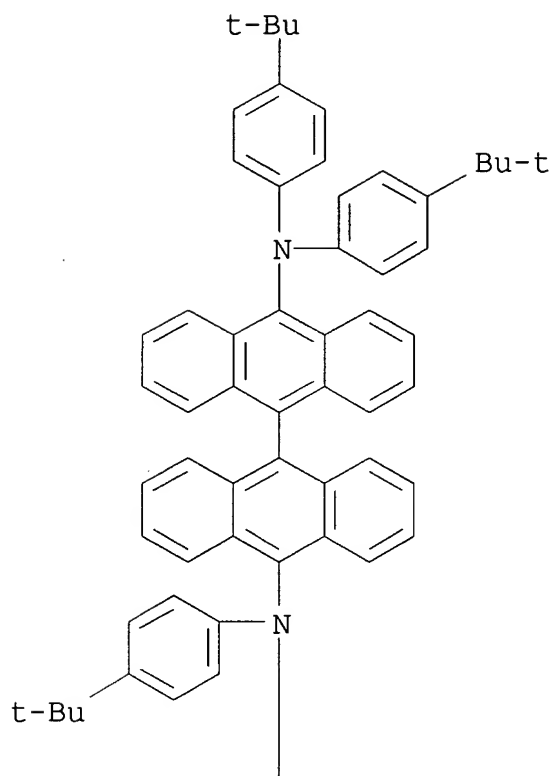


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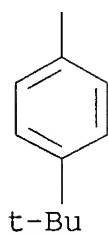


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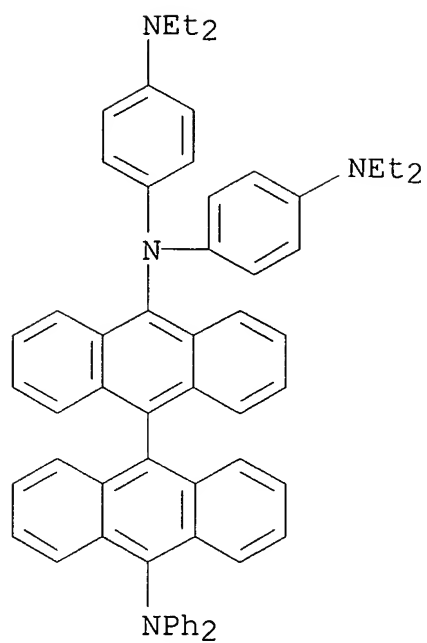
PAGE 1-A



PAGE 2-A



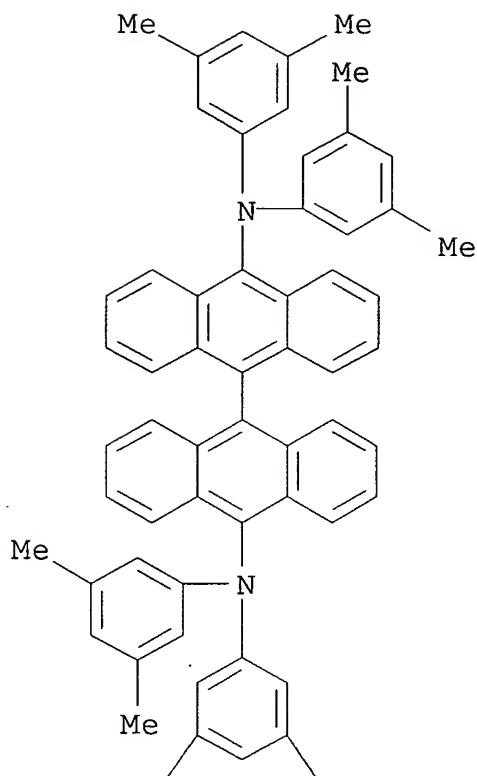
RN 223735-45-3 CAPLUS  
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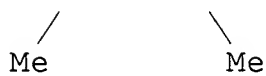
RN 223735-46-4 CAPLUS

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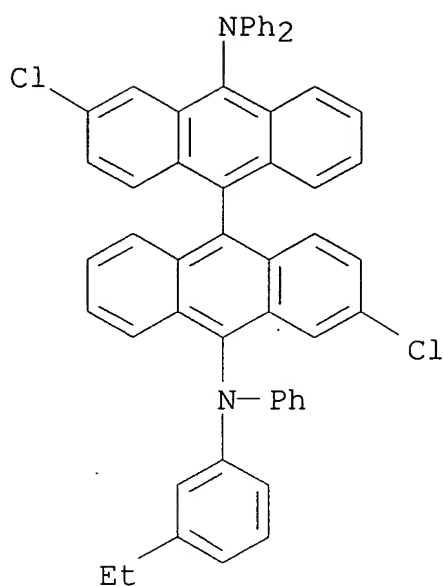
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PAGE 2-A

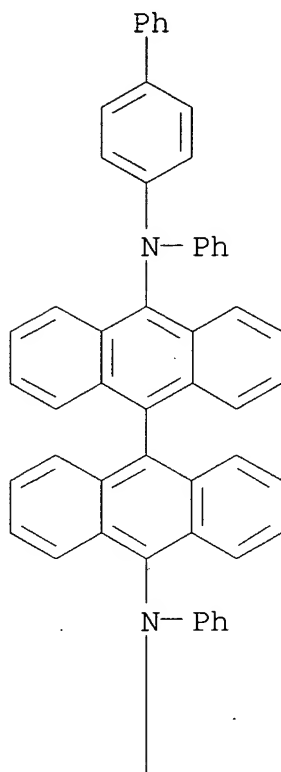


RN 223735-47-5 CAPLUS  
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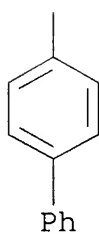


RN 223735-48-6 · CAPLUS  
CN [9,9'-Bianthracene]-10,10'-diamine, N,N'-bis([1,1'-biphenyl]-4-yl)-  
N,N'-diphenyl- (9CI) (CA INDEX NAME)

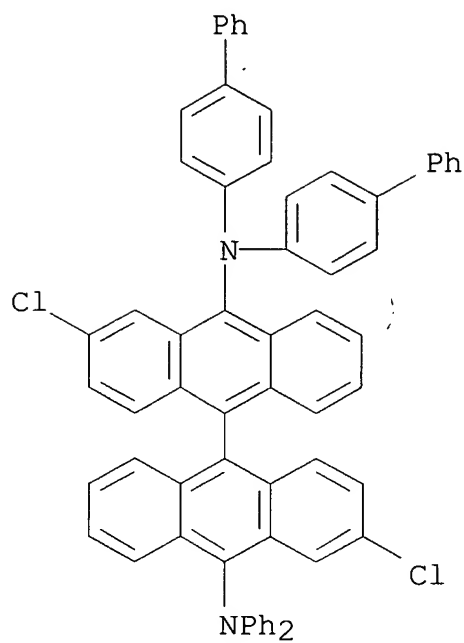
PAGE 1-A



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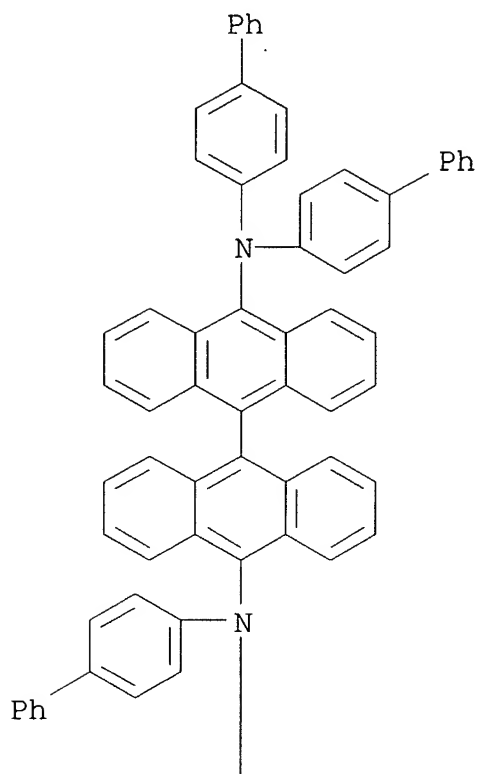
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CN [9,9'-Bianthracene]-10,10'-diamine, N,N-bis([1,1'-biphenyl]-4-yl)-  
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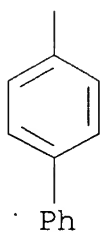
RN 223735-50-0 CAPLUS

CN [9,9'-Bianthracene]-10,10'-diamine, N,N,N',N'-tetrakis([1,1'-biphenyl]-4-yl)- (9CI) (CA INDEX NAME)

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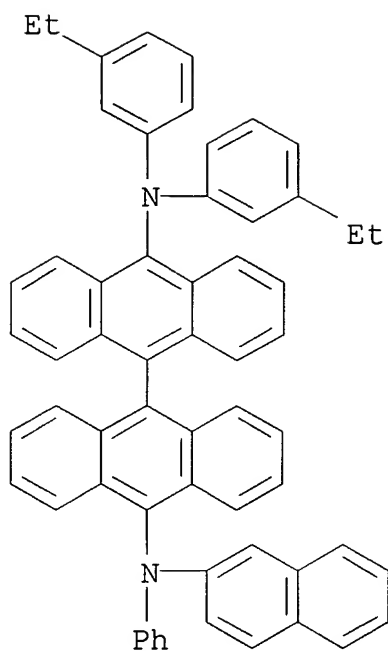


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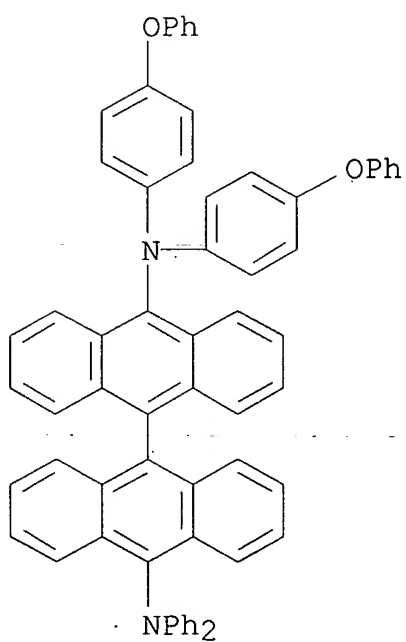
RN 223735-52-2 CAPLUS  
 CN [9,9'-Bianthracene]-10,10'-diamine, N,N-bis(3-ethylphenyl)-N'-2-naphthalenyl-N'-phenyl- (9CI) (CA INDEX NAME)





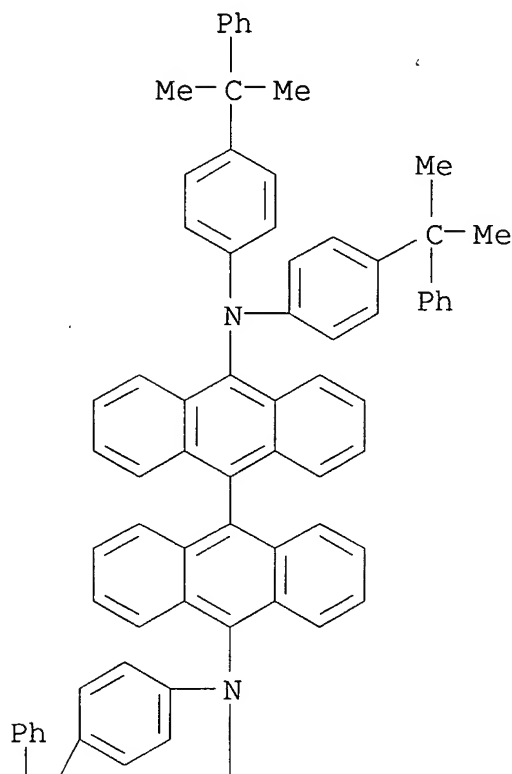
RN 223735-53-3 CAPLUS

CN [9,9'-Bianthracene]-10,10'-diamine, N,N-bis(4-phenoxyphenyl)-N',N'-diphenyl- (9CI) (CA INDEX NAME)

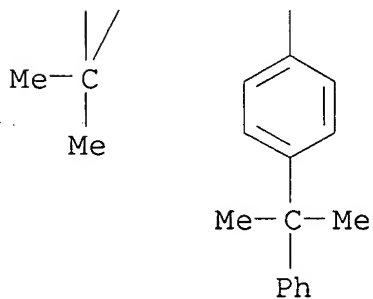


RN 223735-54-4 CAPLUS  
CN [9,9'-Bianthracene]-10,10'-diamine, N,N,N',N'-tetrakis[4-(1-methyl-1-phenylethyl)phenyl]- (9CI) (CA INDEX NAME)

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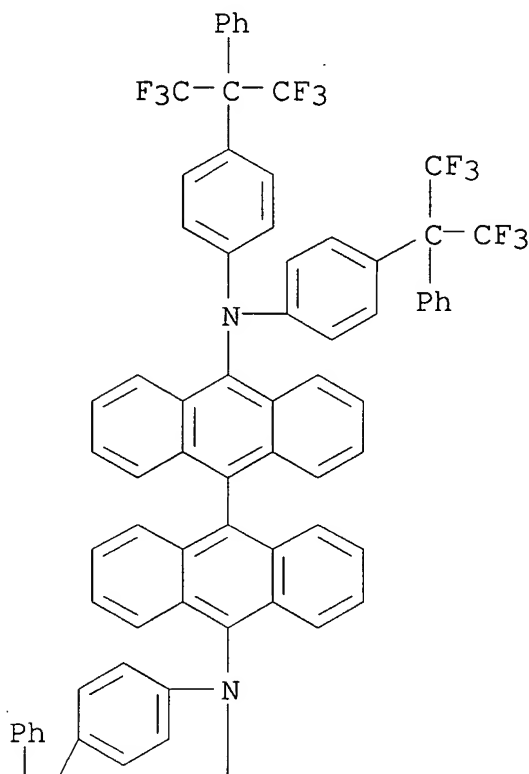
PAGE 2-A



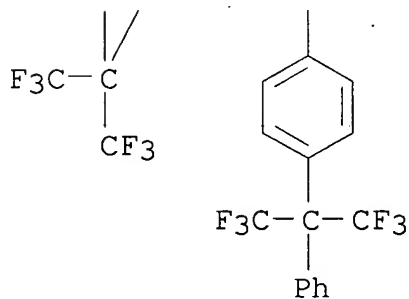
RN 223735-55-5 CAPLUS

CN [9,9'-Bianthracene]-10,10'-diamine, N,N,N',N'-tetrakis[4-[2,2,2-trifluoro-1-phenyl-1-(trifluoromethyl)ethyl]phenyl]- (9CI) (CA INDEX NAME)

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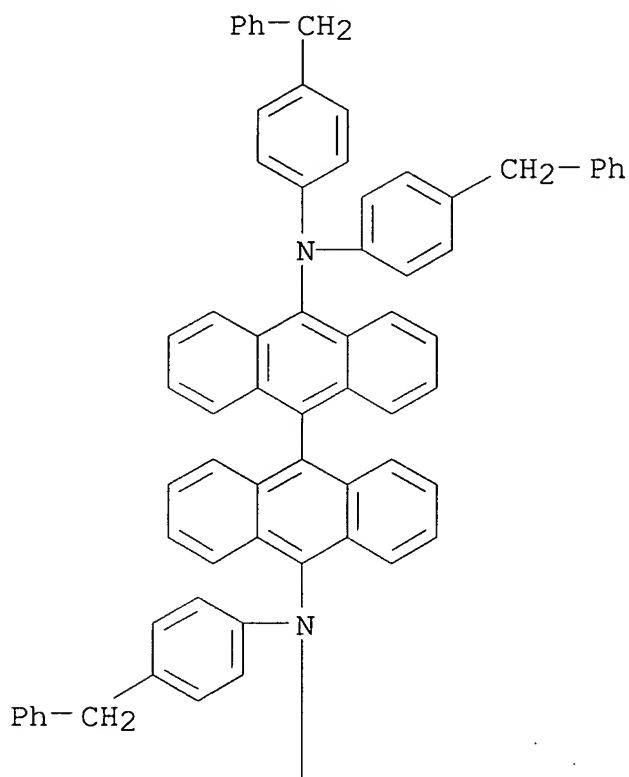
PAGE 2-A



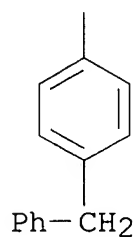
RN 223735-56-6 CAPLUS

CN [9,9'-Bianthracene]-10,10'-diamine, N,N,N',N'-tetrakis[4-(phenylmethyl)phenyl]- (9CI) (CA INDEX NAME)

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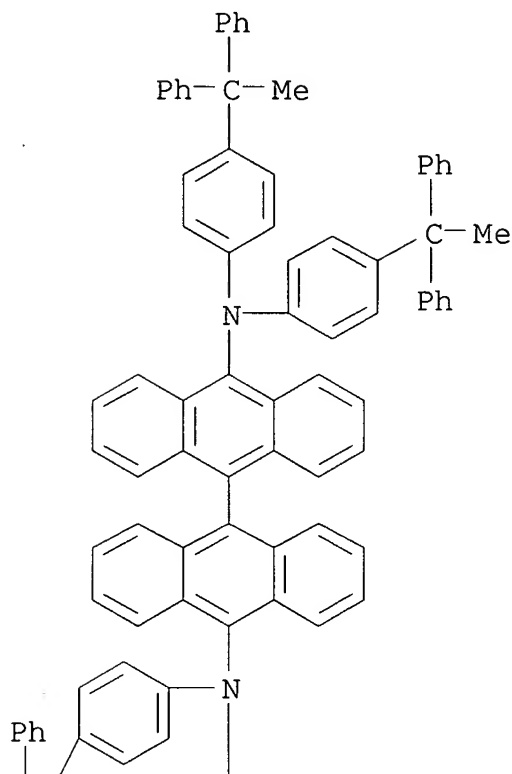


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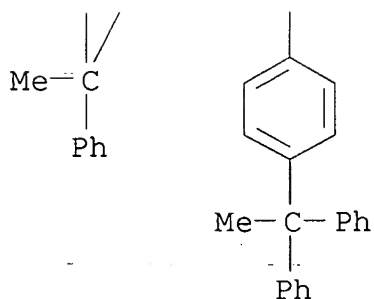


RN 223735-58-8 CAPLUS  
 CN [9,9'-Bianthracene]-10,10'-diamine, N,N,N',N'-tetrakis[4-(1,1-diphenylethyl)phenyl]- (9CI) (CA INDEX NAME)

PAGE 1-A

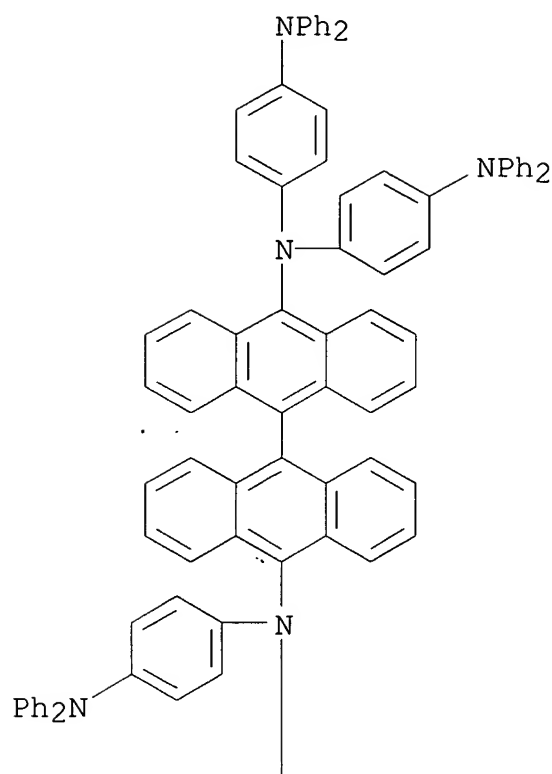


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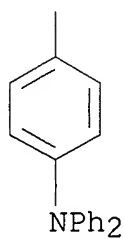


RN 223735-59-9 CAPLUS  
 CN [9,9'-Bianthracene]-10,10'-diamine, N,N,N',N'-tetrakis[4-(diphenylamino)phenyl]- (9CI) (CA INDEX NAME)

PAGE 1-A

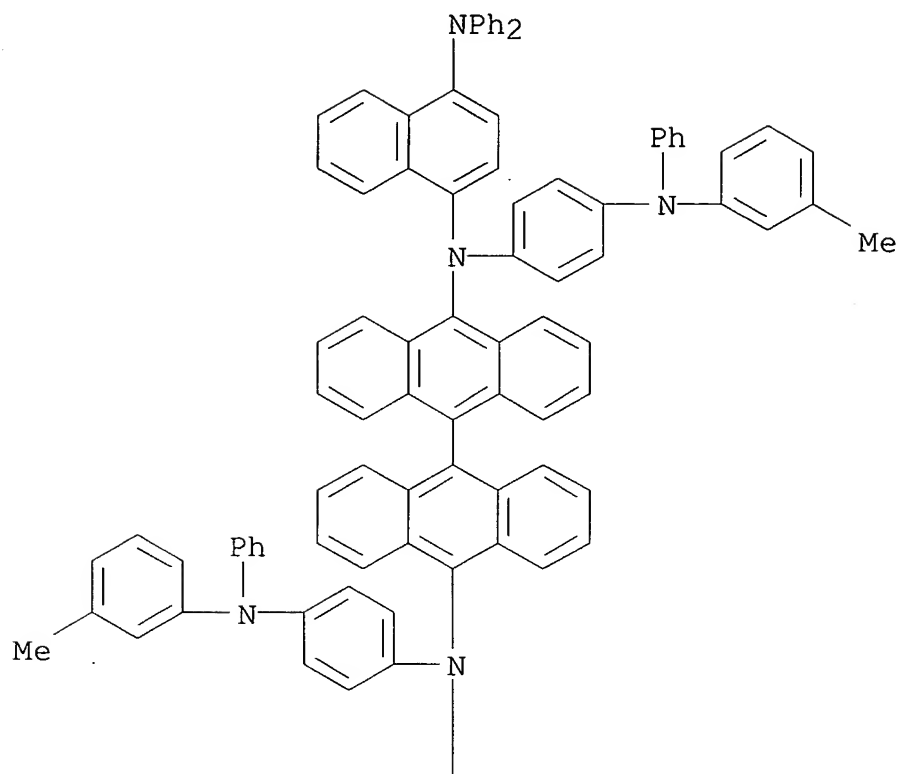


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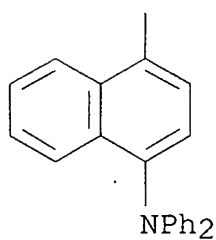


RN 223735-60-2 CAPLUS  
CN [9,9'-Bianthracene]-10,10'-diamine, N,N'-bis[4-(diphenylamino)-1-naphthalenyl]-N,N'-bis[4-[(3-methylphenyl)phenylamino]phenyl]-  
(9CI) (CA INDEX NAME)

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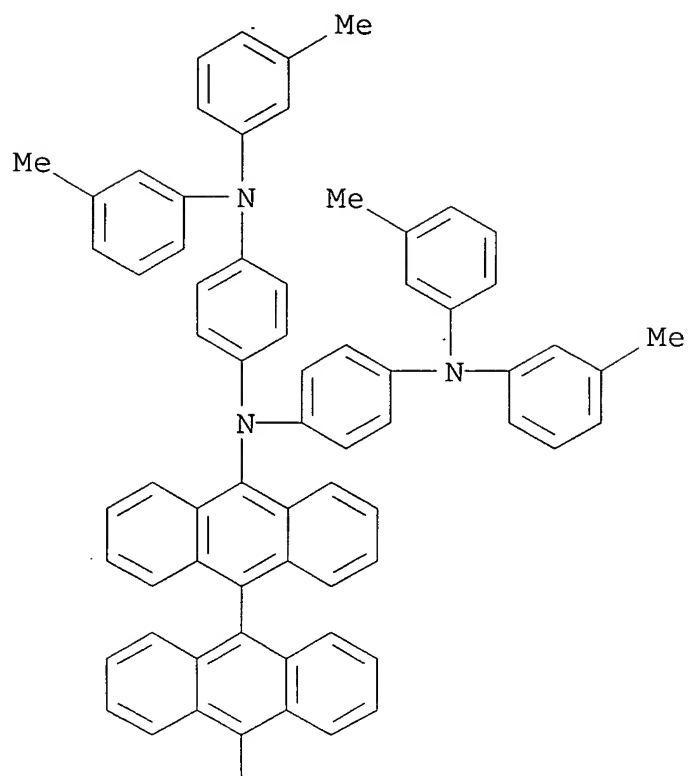


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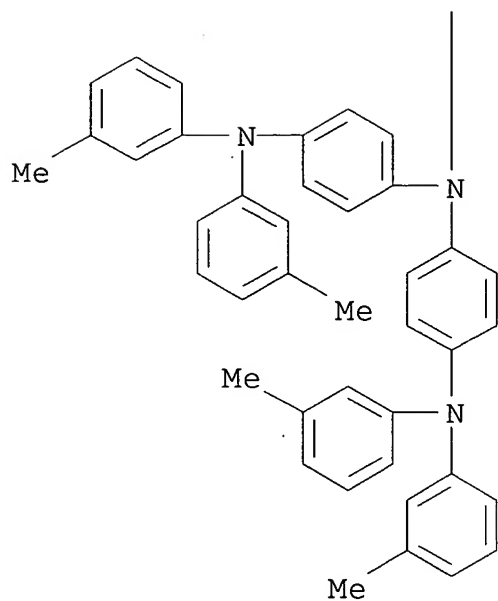
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 CN [9,9'-Bianthracene]-10,10'-diamine, N,N,N',N'-tetrakis[4-[bis(3-methylphenyl)amino]phenyl]- (9CI) (CA INDEX NAME)

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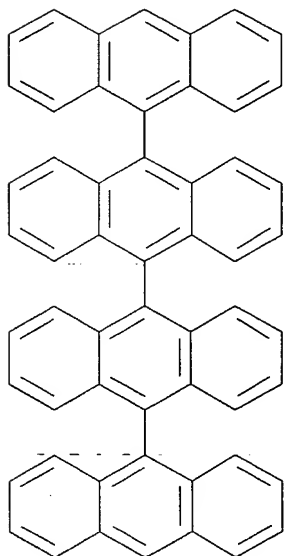


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RN 224051-93-8 CAPLUS

CN 9,9':10',9'':10''',9''''-Quateranthracene (9CI) (CA INDEX NAME)



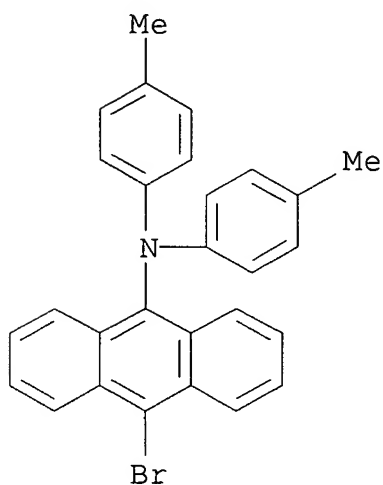
IT 223726-59-8 223726-60-1 223735-65-7

223735-66-8

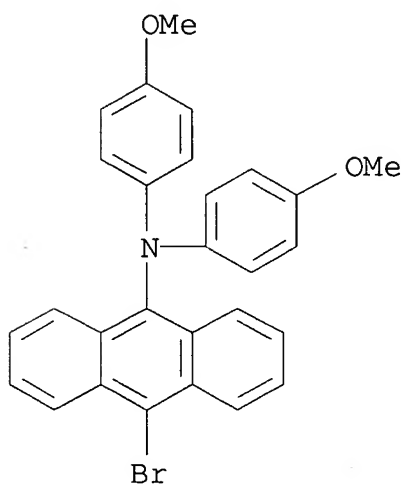
(light-emitting material containing anthracene)

derivative for electroluminescent device)

RN 223726-59-8 CAPLUS

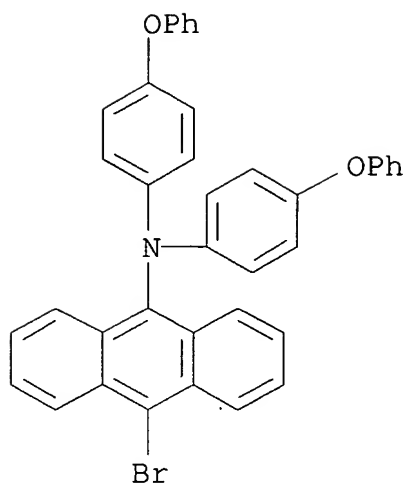
CN 9-Anthracenamine, 10-bromo-N,N-bis(4-methylphenyl)- (9CI) (CA  
INDEX NAME)

RN 223726-60-1 CAPLUS

CN 9-Anthracenamine, 10-bromo-N,N-bis(4-methoxyphenyl)- (9CI) (CA  
INDEX NAME)

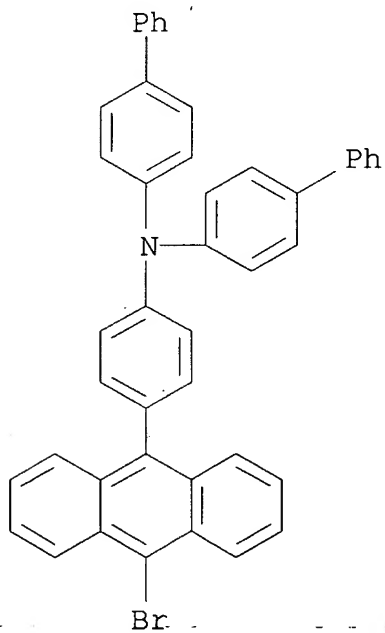
RN 223735-65-7 CAPLUS

CN 9-Anthracenamine, 10-bromo-N,N-bis(4-phenoxyphenyl)- (9CI) (CA  
INDEX NAME)



RN 223735-66-8 CAPLUS

CN [1,1'-Biphenyl]-4-amine, N-[1,1'-biphenyl]-4-yl-N-[4-(10-bromo-9-anthracenyl)phenyl]- (9CI) (CA INDEX NAME)



IC ICM H05B033-14

ICS C09K011-06

CC 73-12 (Optical, Electron, and Mass Spectroscopy and Other Related Properties)

ST org light emitting material anthracene deriv;  
electroluminescent device anthracene compd

IT Electroluminescent devices  
 (light-emitting material containing anthracene  
 derivative for electroluminescent device)

IT 109-72-8, Butyl lithium, uses 1295-35-8, Bis.(1,5-  
 cyclooctadiene)nickel  
 (light-emitting material containing anthracene  
 derivative for electroluminescent device)

IT 223735-62-4P 223735-63-5P 223735-64-6P  
 (light-emitting material containing anthracene  
 derivative for electroluminescent device)

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 223735-35-1 223735-36-2 223735-37-3  
 223735-38-4 223735-39-5 223735-40-8  
 223735-41-9 223735-42-0 223735-43-1  
 223735-44-2 223735-45-3 223735-46-4  
 223735-47-5 223735-48-6 223735-49-7  
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 223735-56-6 223735-57-7 223735-58-8  
 223735-59-9 223735-60-2 223735-61-3  
 224051-93-8, 9,9':10',9'':10'',9'''-Quateranthracene  
 (light-emitting material containing anthracene  
 derivative for electroluminescent device)

IT 14264-16-5 223726-59-8 223726-60-1  
 223735-65-7 223735-66-8  
 (light-emitting material containing anthracene  
 derivative for electroluminescent device)

L40 ANSWER 60 OF 65 CAPLUS COPYRIGHT 2005 ACS on STN  
 ACCESSION NUMBER: 1999:111985 CAPLUS  
 DOCUMENT NUMBER: 130:202743  
 TITLE: Organic electroluminescent device containing  
 bianthryl derivative  
 INVENTOR(S): Higashiguchi Toru; Oda, Atsushi; Ishikawa,  
 Hitoshi  
 PATENT ASSIGNEE(S): NEC Corp., Japan  
 SOURCE: Jpn. Kokai Tokkyo Koho, 16 pp.  
 CODEN: JKXXAF  
 DOCUMENT TYPE: Patent  
 LANGUAGE: Japanese  
 FAMILY ACC. NUM. COUNT: 4  
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
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JP 11040357	A2	19990212	JP 1997-188639	

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PRIORITY APPLN. INFO.:

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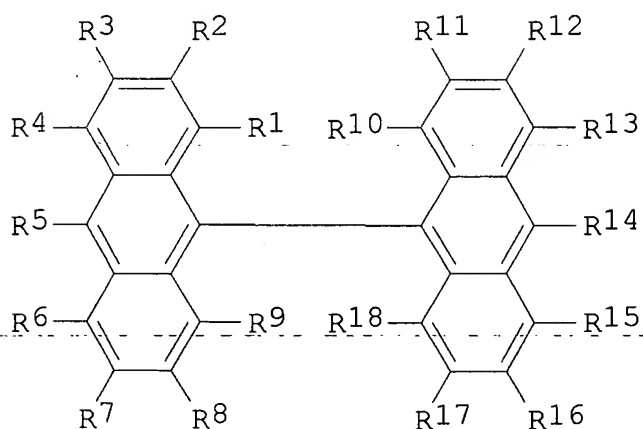
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1998  
0415OTHER SOURCE(S):  
GI

MARPAT 130:202743



I

AB The device the device has  $\geq 1$  organic thin film layer containing  $\geq 1$  bianthryl derivative I [R1-18 = H, halo, OH,

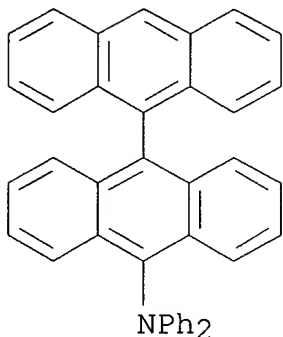
(substituted) amino, NO<sub>2</sub>, cyano, (substituted) alkyl, (substituted) alkenyl, (substituted) cycloalkyl, (substituted) alkoxy, (substituted) aromatic hydrocarbon, (substituted) aromatic heterocycle, (substituted) aralkyl, (substituted) aryloxy, (substituted) alkoxycarbonyl, CO<sub>2</sub>H; neighboring R<sub>1</sub>-14 may form ring(s); ≥1 of R<sub>1</sub>-18 may be NAr<sub>1</sub>Ar<sub>2</sub>; Ar<sub>1</sub>, Ar<sub>2</sub> = (substituted) C<sub>6</sub>-20 aryl] between an anode and a cathode. The device shows high emission.

IT 220721-66-4P 220721-68-6P 220721-70-0P  
220721-72-2P

(organic electroluminescent device containing bianthryl derivative)

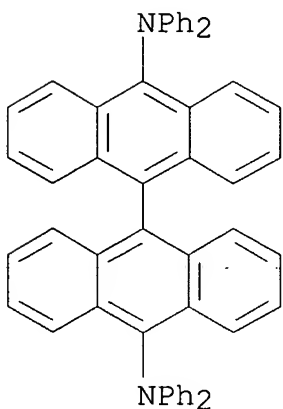
RN 220721-66-4 CAPLUS

CN [9,9'-Bianthracen]-10-amine, N,N-diphenyl- (9CI) (CA INDEX NAME)



RN 220721-68-6 CAPLUS

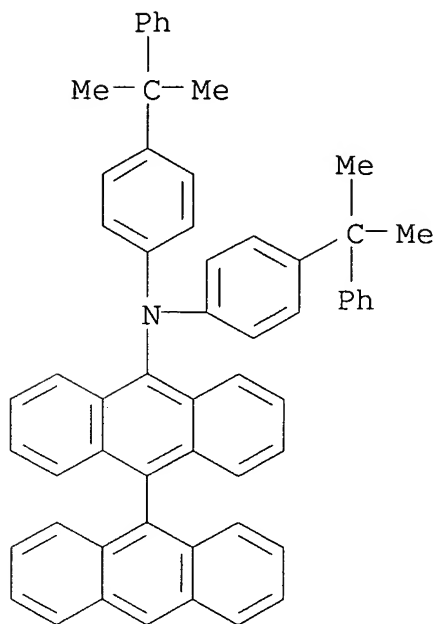
CN [9,9'-Bianthracene]-10,10'-diamine, N,N,N',N'-tetraphenyl- (9CI)  
(CA INDEX NAME)



RN 220721-70-0 CAPLUS

CN [9,9'-Bianthracen]-10-amine, N,N-bis[4-(1-methyl-1-

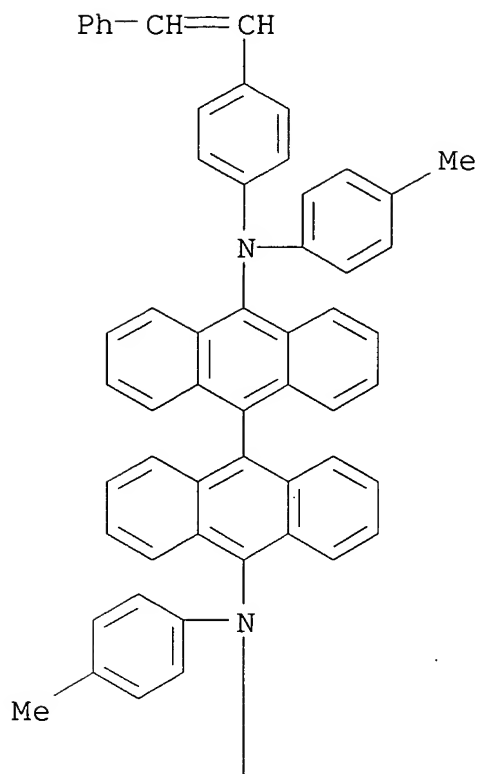
phenylethyl)phenyl]- (9CI) (CA INDEX NAME)



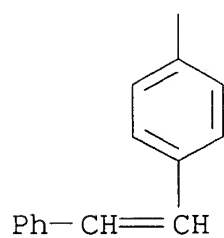
RN 220721-72-2 CAPLUS

CN [9,9'-Bianthracene]-10,10'-diamine, N,N'-bis(4-methylphenyl)-N,N'-bis[4-(2-phenylethenyl)phenyl]- (9CI) (CA INDEX NAME)

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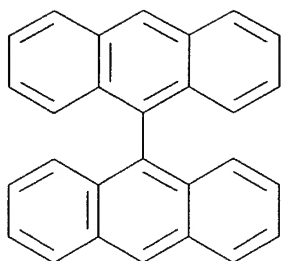


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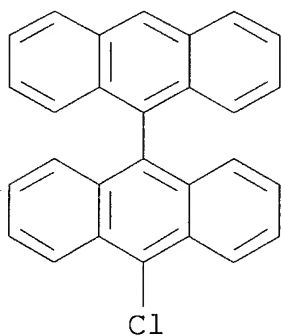


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IT      1055-23-8P, 9,9'-Bianthryl
        (organic electroluminescent device containing bianthryl derivative)
RN      1055-23-8    CAPLUS
CN      9,9'-Bianthracene (9CI)    (CA INDEX NAME)
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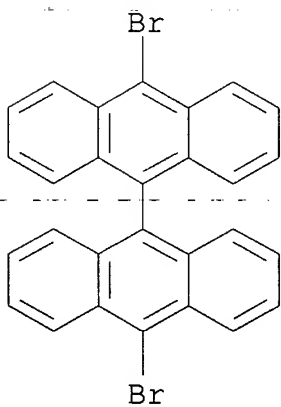




IT 89045-53-4P, 10-Chloro-9,9'-bianthryl 121848-75-7P  
220721-75-5P 220721-77-7P  
(organic electroluminescent device containing bianthryl derivative)  
RN 89045-53-4 CAPLUS  
CN 9,9'-Bianthracene, 10-chloro- (9CI) (CA INDEX NAME)

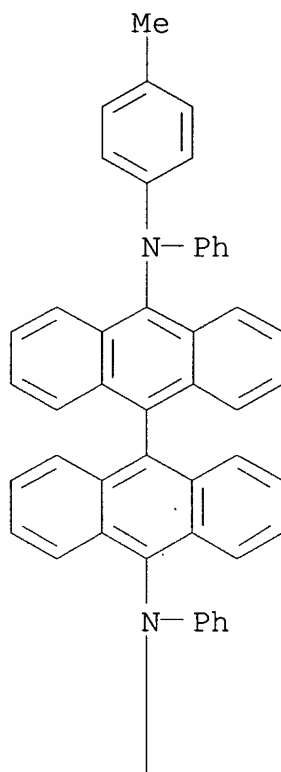


RN 121848-75-7 CAPLUS  
CN 9,9'-Bianthracene, 10,10'-dibromo- (9CI) (CA INDEX NAME)

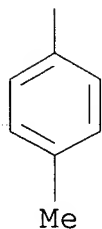


RN 220721-75-5 CAPLUS  
CN [9,9'-Bianthracene]-10,10'-diamine, N,N'-bis(4-methylphenyl)-N,N'-diphenyl- (9CI) (CA INDEX NAME)

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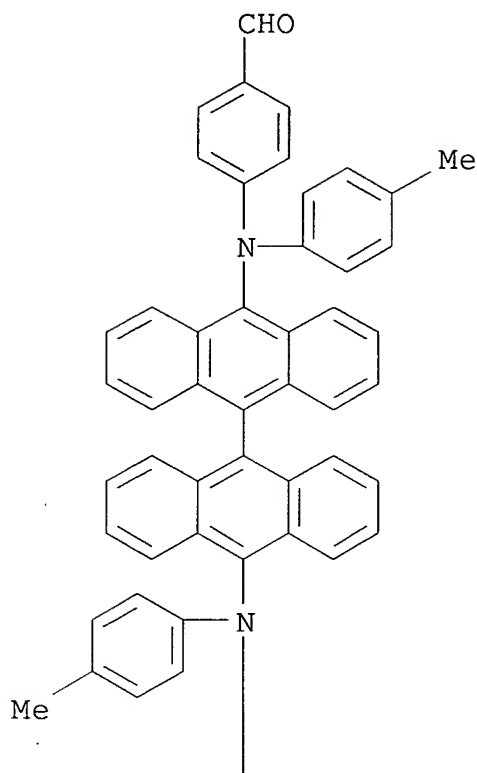


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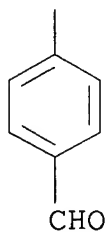


RN 220721-77-7 CAPLUS  
CN Benzaldehyde, 4,4'-[[9,9'-bianthracene]-10,10'-diylbis[(4-methylphenyl)imino]]bis- (9CI) (CA INDEX NAME)

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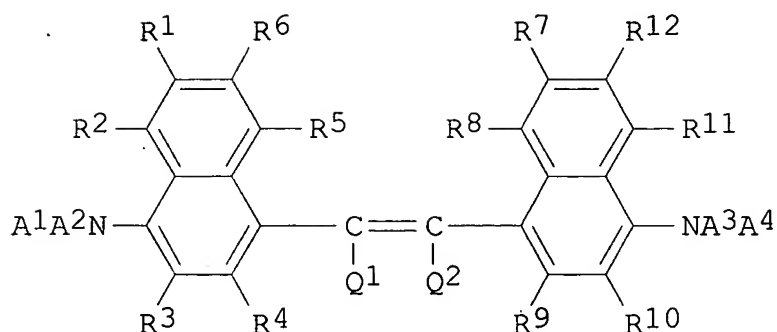
IC ICM H05B033-14  
ICS C09K011-06; H05B033-22  
CC 73-11 (Optical, Electron, and Mass Spectroscopy and  
Other Related Properties)  
ST electroluminescent device bianthryl light  
emitting layer; EL device anthracene

light emitting layer  
IT 220721-66-4P 220721-68-6P 220721-70-0P  
220721-72-2P  
(organic electroluminescent device containing bianthryl derivative)  
IT 1055-23-8P, 9,9'-Bianthryl  
(organic electroluminescent device containing bianthryl derivative)  
IT 89045-53-4P, 10-Chloro-9,9'-bianthryl 121848-75-7P  
220721-75-5P 220721-77-7P  
(organic electroluminescent device containing bianthryl derivative)

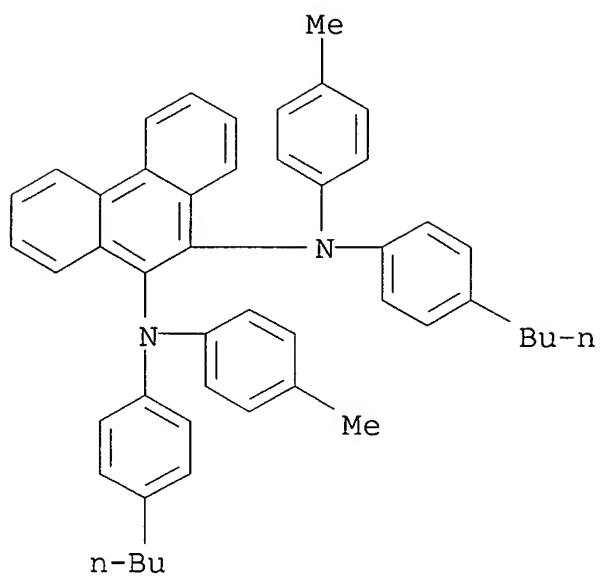
L40 ANSWER 61 OF 65 CAPLUS COPYRIGHT 2005 ACS on STN  
ACCESSION NUMBER: 1999:111658 CAPLUS  
DOCUMENT NUMBER: 130:202697  
TITLE: Organic electroluminescent device used as  
planar light source in optical displays  
INVENTOR(S): Okutsu, Akira; Tamano, Michiko; Onikubo,  
Shunichi; Enokida, Toshio  
PATENT ASSIGNEE(S): Toyo Ink Mfg. Co., Ltd., Japan  
SOURCE: Jpn. Kokai Tokkyo Koho, 27 pp.  
CODEN: JKXXAF  
DOCUMENT TYPE: Patent  
LANGUAGE: Japanese  
FAMILY ACC. NUM. COUNT: 1  
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 11040359	A2	19990212	JP 1997-195294	1997 0722
PRIORITY APPLN. INFO.:				JP 1997-195294 1997 0722

OTHER SOURCE(S): MARPAT 130:202697  
GI

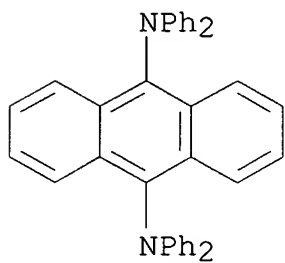


- AB An organic electroluminescent device with high intensity and long operation life, comprises a **light emitting layer** containing a substance represented by I [A1-4 = alkyl, monocyclic, condensed polycyclic, etc.; Q1-2 = H, CN, alkyl, etc.; R1-12 = H, halo, CN, NO2, etc.] and an electron injection/transporting **layer** containing a substance represented by 1X2XLGe [X1-2 = hydroxyquinoline, and hydroxybenzoquinoline derivs.; L = halo, alkyl, monocyclic, etc.].
- IT 151026-65-2, N,N'-(4-Methylphenyl)-N,N'-(4-n-butylphenyl)-phenanthrene-9,10-diamine 177799-11-0  
177799-15-4 220720-17-2 220720-21-8  
(organic electroluminescent device used as planar light source in optical displays)
- RN 151026-65-2 CAPLUS
- CN 9,10-Phenanthrenediamine, N,N'-bis(4-butylphenyl)-N,N'-bis(4-methylphenyl)- (9CI) (CA INDEX NAME)



RN 177799-11-0 CAPLUS

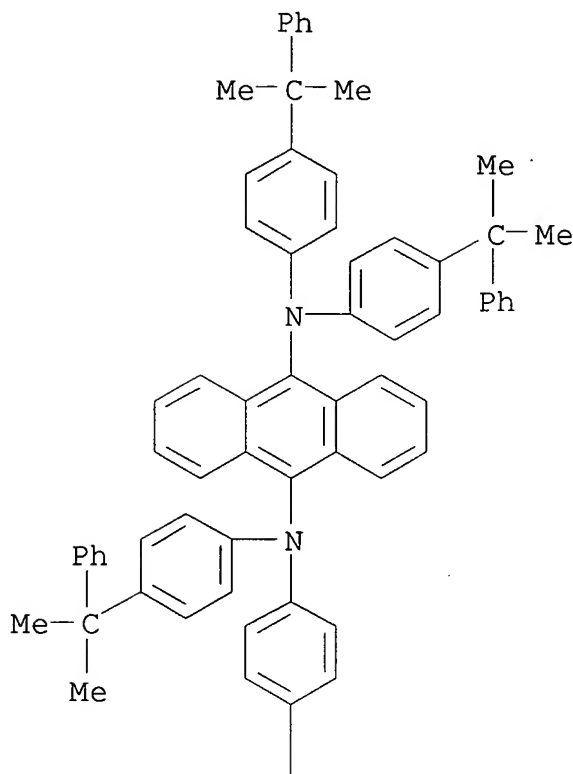
CN 9,10-Anthracenediamine, N,N,N',N'-tetraphenyl- (9CI) (CA INDEX NAME)



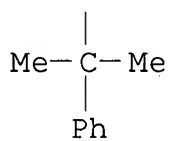
RN 177799-15-4 CAPLUS

CN 9,10-Anthracenediamine, N,N,N',N'-tetrakis[4-(1-methyl-1-phenylethyl)phenyl]- (9CI) (CA INDEX NAME)

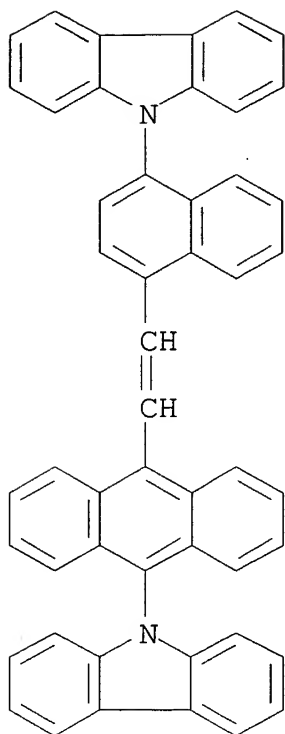
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RN 220720-17-2 CAPLUS  
 CN 9H-Carbazole, 9-[4-[2-[10-(9H-carbazol-9-yl)-9-anthracenyl]ethenyl]-1-naphthalenyl]- (9CI) (CA INDEX NAME)

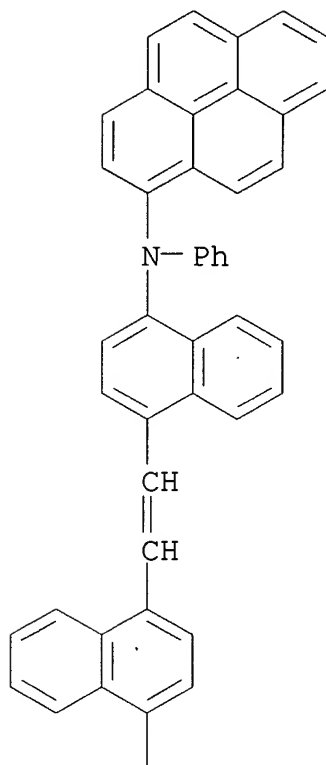


RN 220720-21-8 CAPLUS

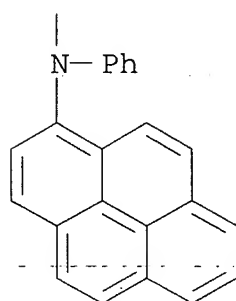
CN 1-Pyrenamine, N,N'-(1,2-ethenediyl)di-4,1-naphthalenediyl)bis[N-phenyl- (9CI) (CA INDEX NAME)



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IC ICM H05B033-14  
 ICS C09K011-06; H05B033-22  
 CC 73-11 (**Optical**, Electron, and Mass Spectroscopy and  
 Other Related Properties)  
 IT 2085-33-8, A1 8q 15082-28-7 62896-28-0 65181-78-4, TPD

123847-85-8, 4,4'-Bis{N-(1-naphthyl)-N-phenylamino}biphenyl  
124729-98-2, 4,4',4'''-Tris[N-(3-methylphenyl)-N-phenylamino]triphenylamine 151026-65-2,  
N,N'-(4-Methylphenyl)-N,N'-(4-n-butylphenyl)-phenanthrene-9,10-diamine 177799-11-0 177799-15-4 188049-36-7  
194794-43-9 219638-64-9 220720-15-0 220720-16-1  
220720-17-2 220720-18-3 220720-19-4 220720-20-7  
220720-21-8 220720-22-9 220720-23-0 220720-24-1  
220720-25-2 220720-26-3 220720-27-4 220720-28-5  
220720-29-6 220720-31-0 220720-33-2 220720-34-3  
220720-35-4 220720-36-5 220720-37-6 220720-38-7  
220720-39-8

(organic electroluminescent device used as planar light source in optical displays)

L40 ANSWER 62 OF 65 CAPLUS COPYRIGHT 2005 ACS on STN

ACCESSION NUMBER: 1998:735541 CAPLUS

DOCUMENT NUMBER: 130:58899

TITLE: Aromatic amine compound **luminescent** material and electroluminescent device with high luminance and **luminescent** efficiency using it

INVENTOR(S): Onikubo, Shunichi; Okutsu, Satoshi; Tamano, Michiko; Enokida, Toshio

PATENT ASSIGNEE(S): Toyo Ink Mfg. Co., Ltd., Japan

SOURCE: Jpn. Kokai Tokkyo Koho, 36 pp.

CODEN: JKXXAF

DOCUMENT TYPE: Patent

LANGUAGE: Japanese

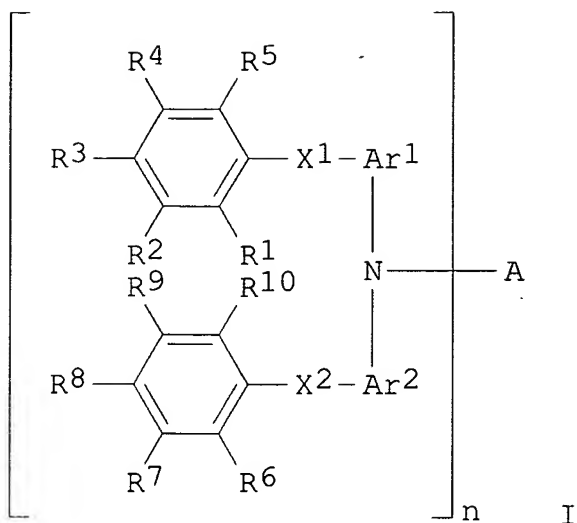
FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
-----	----	-----	-----	
JP 10302960	A2	19981113	JP 1997-112088	1997 0430
JP 3498533	B2	20040216		
PRIORITY APPLN. INFO.:			JP 1997-112088	1997 0430

OTHER SOURCE(S): MARPAT 130:58899

GI

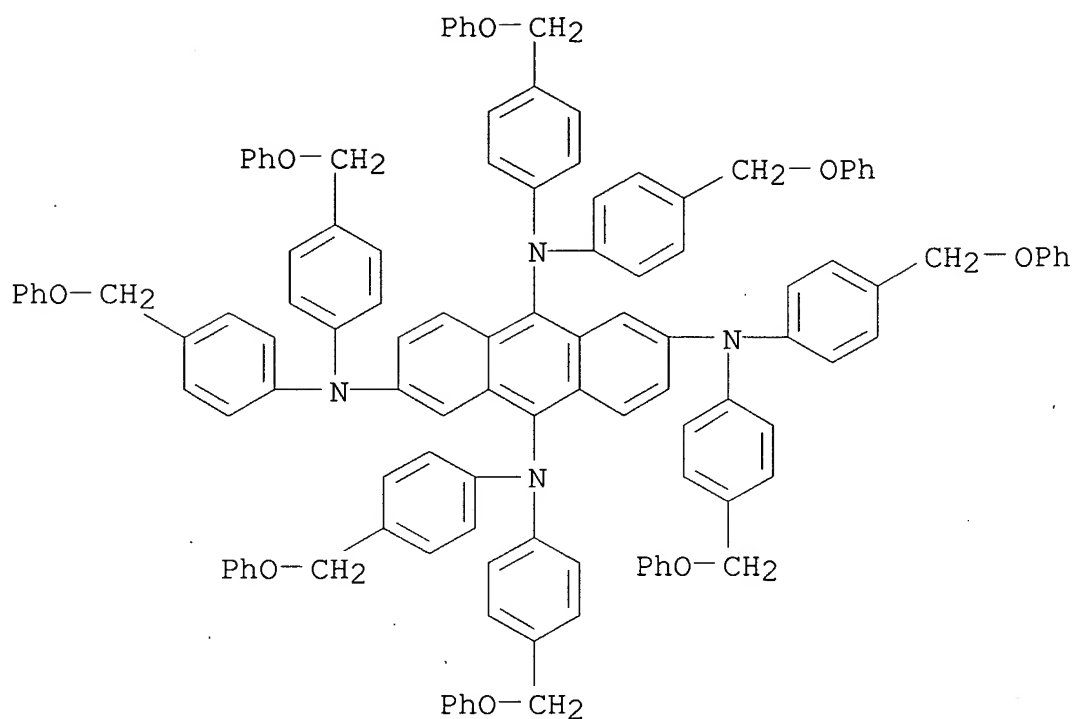


AB The title material comprises an aromatic amine compound described by the general formula I [ $n = 3-15$ ; A = group containing (un)substituted (condensed) aromatic or heterocyclic aromatic group;  $A \neq Q$ ; Ar1-2 = (un)substituted (condensed) aromatic group; X1-2 = O, S, CO, SO<sub>2</sub>, C<sub>x</sub>H<sub>2x</sub>OCyH<sub>2y</sub>; (un)substituted C1-20 alkylidene, alkylene, (un)substituted divalent alicyclic group; x, y = 0-20;  $x + y \neq 0$ ; R1-10 = H, halo, (un)substituted alkyl, alkoxy, aromatic group, heterocyclic aromatic group, amino; R1-5 or R6-10 may form ring]. The device has a **light-emitting layer** containing I. The device showed high luminance and **luminescent** efficiency and long lifetime.

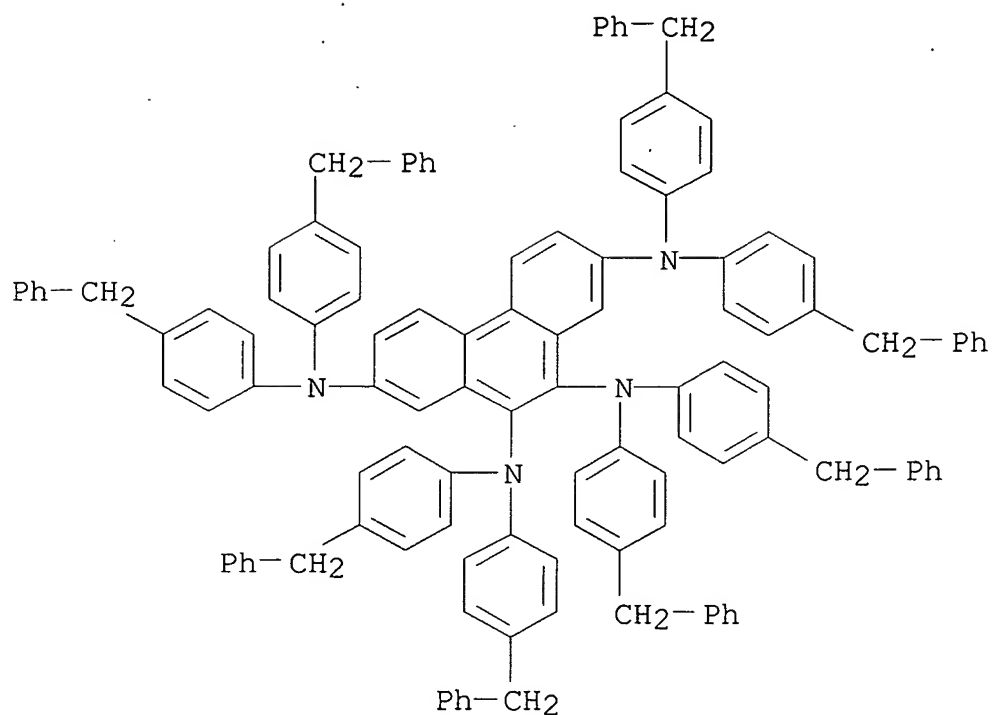
IT 216974-92-4 216974-93-5 216975-07-4  
(aromatic amine-based emitting materials for electroluminescent devices)

RN 216974-92-4 CAPLUS

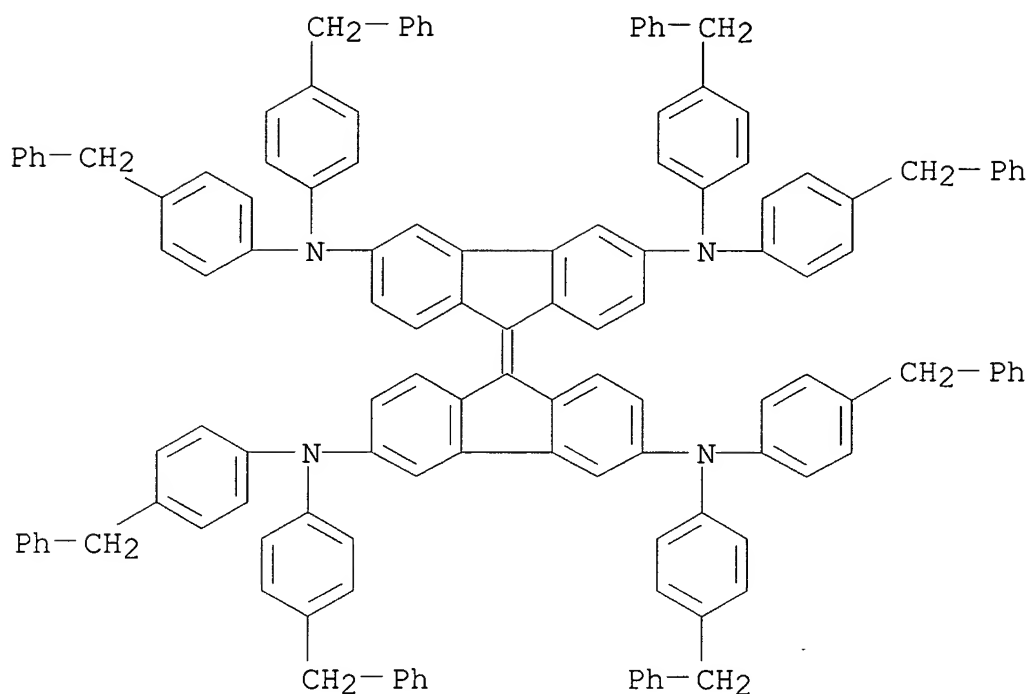
CN 2,6,9,10-Anthracenetetramine, N,N,N',N',N'',N'',N''',N'''-octakis[4-(phenoxyethyl)phenyl]- (9CI) (CA INDEX NAME)



RN 216974-93-5 CAPLUS  
CN 2,7,9,10-Phenanthrenetetramine, N,N,N',N',N'',N'',N''',N'''-  
octakis[4-(benzylmethoxy)phenyl]- (9CI) (CA INDEX NAME)



RN 216975-07-4 CAPLUS  
 CN 9H-Fluorene-3,6-diamine, 9-[3,6-bis[bis[4-(phenylmethyl)phenyl]amino]-9H-fluoren-9-ylidene]-N,N,N',N'-tetrakis[4-(phenylmethyl)phenyl]- (9CI) (CA INDEX NAME)



IC ICM H05B033-14  
ICS C09K011-06

CC 73-11 (**Optical**, Electron, and Mass Spectroscopy and  
Other Related Properties)  
Section cross-reference(s): 25, 76

ST arom amine electroluminescent device high luminance;  
**luminescent** efficiency electroluminescent device arom  
amine

IT 209165-07-1 209165-09-3 209165-27-5 209165-31-1  
**216974-92-4 216974-93-5** 216974-94-6  
216974-95-7 216974-97-9 216974-99-1 216975-00-7  
216975-02-9 216975-03-0 216975-05-2 **216975-07-4**  
216975-09-6 216975-11-0 216975-13-2 216975-17-6  
216975-19-8 216975-21-2 216975-22-3 216975-23-4  
216975-24-5 216975-25-6 216975-26-7 216975-27-8  
216975-28-9 216975-29-0 216975-30-3 216975-31-4  
216975-32-5 217086-74-3 217086-98-1 217087-26-8  
217087-30-4 217087-34-8  
(aromatic amine-based emitting materials for electroluminescent  
devices)

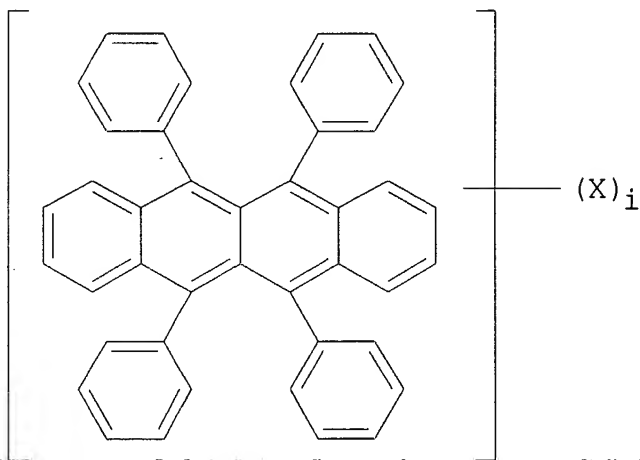
L40 ANSWER 63 OF 65 CAPLUS COPYRIGHT 2005 ACS on STN  
ACCESSION NUMBER: 1998:693684 CAPLUS  
DOCUMENT NUMBER: 130:18786  
TITLE: Organic electroluminescent device material

containing naphthacene derivative and organic electroluminescent device with it  
 INVENTOR(S): Okutsu, Satoshi; Tamano, Michiko; Onikubo, Shunichi; Enokida, Toshio  
 PATENT ASSIGNEE(S): Toyo Ink Mfg. Co., Ltd., Japan  
 SOURCE: Jpn. Kokai Tokkyo Koho, 28 pp.  
 CODEN: JKXXAF

DOCUMENT TYPE: Patent  
 LANGUAGE: Japanese  
 FAMILY ACC. NUM. COUNT: 1  
 PATENT INFORMATION:

PATENT NO. -----	KIND ----	DATE -----	APPLICATION NO. -----	DATE
JP 10289786	A2	19981027	JP 1997-95406	1997 0414
PRIORITY APPLN. INFO.:			JP 1997-95406	1997 0414

OTHER SOURCE(S): MARPAT 130:18786  
 GI



AB The title material contains the derivative described by the general formula I (X = halo, cyano, alkyl, aryl, alkoxy, aryloxy, alkylthio, arylthio, cycloalkyl, heterocyclic, NH<sub>2</sub>; i = 1-28). Device are also described which have plural organic compound thin films, containing a **light-emitting layer**

and a hole injection **layer**, sandwiched by a pair of electrodes, in which one of the **layers** contains the material. The devices show high luminance, efficiency, and long life.

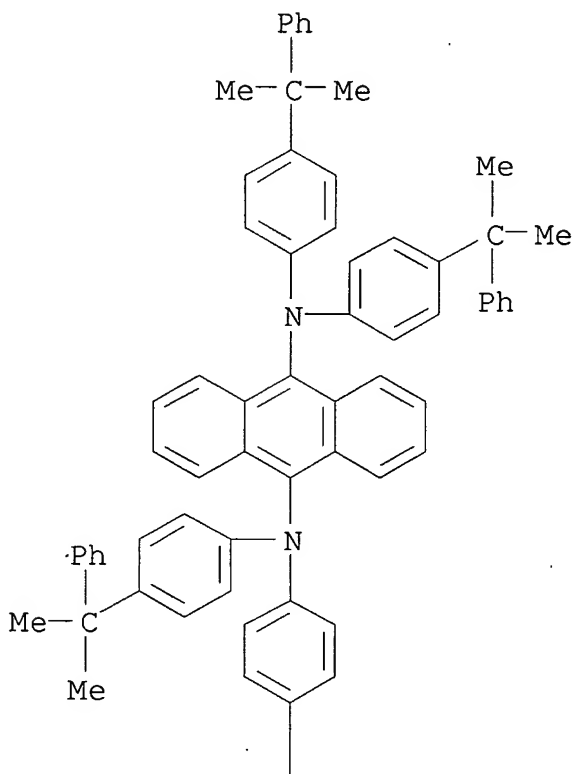
IT 177799-15-4 216066-82-9

(organic electroluminescent device containing naphthacene compound)

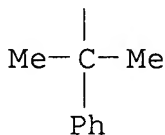
RN 177799-15-4 CAPLUS

CN 9,10-Anthracenediamine, N,N,N',N'-tetrakis[4-(1-methyl-1-phenylethyl)phenyl]- (9CI) (CA INDEX NAME)

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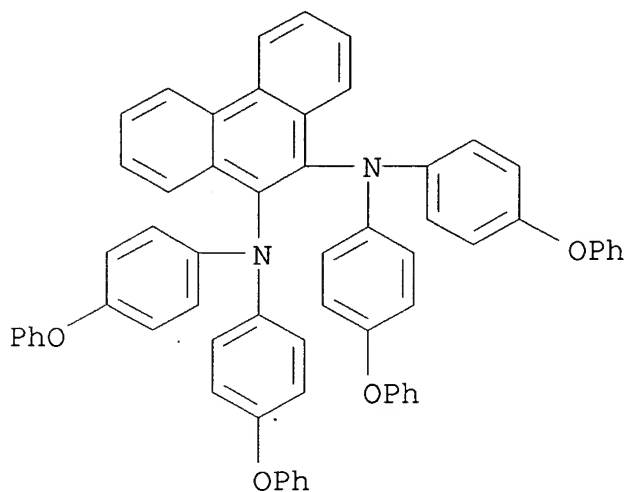


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RN 216066-82-9 CAPLUS  
 CN 9,10-Phenanthrenediamine, N,N,N',N'-tetrakis(4-phenoxyphenyl)-  
 (9CI) (CA INDEX NAME)



IC ICM H05B033-22  
 ICS C09K011-06; H05B033-14  
 CC 73-11 (**Optical**, Electron, and Mass Spectroscopy and  
 Other Related Properties)  
 Section cross-reference(s): 76  
 ST electroluminescent naphthacene deriv **light**  
**emitting layer; hole injection layer**  
 naphthacene deriv  
 IT 2085-33-8 123847-85-8 146162-54-1 **177799-15-4**  
 184024-25-7 194214-31-8 194794-43-9 213968-34-4  
 216066-57-8 216066-58-9 216066-59-0 216066-60-3  
 216066-62-5 216066-63-6 216066-64-7 216066-65-8  
 216066-66-9 216066-67-0 216066-68-1 216066-69-2  
 216066-70-5 216066-71-6 216066-72-7 216066-73-8  
 216066-74-9 216066-75-0 216066-76-1 216066-77-2  
 216066-78-3 216066-79-4 216066-80-7 216066-81-8  
**216066-82-9** 216066-83-0

(organic electroluminescent device containing naphthacene compound)

L40 ANSWER 64 OF 65 CAPLUS COPYRIGHT 2005 ACS on STN  
 ACCESSION NUMBER: 1998:214620 CAPLUS  
 DOCUMENT NUMBER: 128:288154  
 TITLE: Organic electroluminescence device with good  
 hole-transporting **layers**  
 INVENTOR(S): Okutsu, Satoshi; Onikubo, Shunichi; Enokida,  
 Toshio; Tamano, Michiko

PATENT ASSIGNEE(S): Toyo Ink Mfg. Co., Ltd., Japan  
 SOURCE: Jpn. Kokai Tokkyo Koho, 20 pp.  
 CODEN: JKXXAF  
 DOCUMENT TYPE: Patent  
 LANGUAGE: Japanese  
 FAMILY ACC. NUM. COUNT: 1  
 PATENT INFORMATION:

PATENT NO. -----	KIND ----	DATE -----	APPLICATION NO. -----	DATE
JP 10088120	A2	19980407	JP 1996-244490	1996 0917

PRIORITY APPLN. INFO.: JP 1996-244490

1996  
0917

OTHER SOURCE(S): MARPAT 128:288154

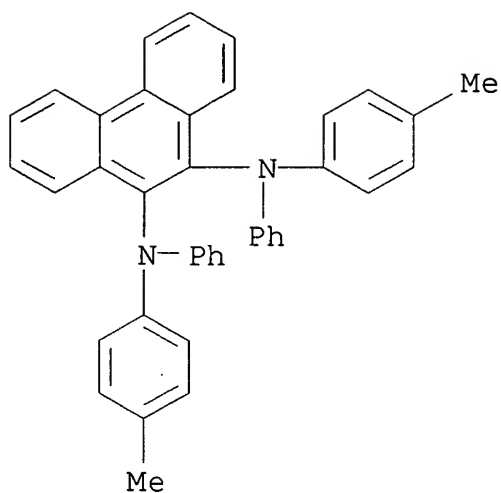
AB In the device having m-layered (m = 2-10)  
 hole-transporting layers, a light-  
 emitting layer, and an electron-transporting  
 layer stacked in this order on an anode, the light-  
 emitting layer contains an aromatic diamine  
 A1A2NZNA3A4 [A1-4 = (substituted) aryl or heterocyclic groups; Z =  
 (un)substituted C<sub>≤</sub>30 condensed aryl or condensed  
 aryl-heterocyclic groups] and the ionization potentials of each of  
 the hole-transporting layers (Iph1, Iph2, Iph3...Iphm;  
 Iph1 refers to anode side) and the light-  
 emitting layer (Ipe) and the work function of  
 the anode (Ipa) satisfy the following expression:  
 Ipa < Iph1 < Iph2 < Iph3 < ... < Iphm < Ipe. The device shows low generation  
 of Joule's heat, low deterioration of luminescence  
 efficiency, and high durability.

IT 151026-61-8D, alkyl derivs. 177799-15-4  
 205696-99-7

(organic electroluminescence device containing aromatic diamine  
 light-emitting material)

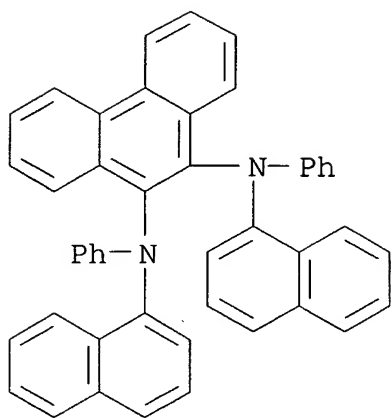
RN 151026-61-8 CAPLUS

CN 9,10-Phenanthrenediamine, N,N'-bis(4-methylphenyl)-N,N'-diphenyl-  
 (9CI) (CA INDEX NAME)



RN 177799-15-4 CAPLUS  
CN 9,10-Anthracenediamine, N,N,N',N'-tetrakis[4-(1-methyl-1-phenylethyl)phenyl]- (9CI) (CA INDEX NAME)



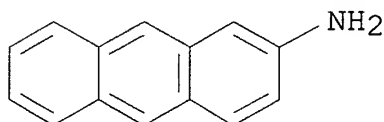


IC ICM C09K011-06  
 CC 73-11 (**Optical**, Electron, and Mass Spectroscopy and  
 Other Related Properties)  
 Section cross-reference(s): 25  
 ST arom diamine **light emitting** electroluminescent  
 device; ionization potential hole transport electroluminescent  
 device  
 IT Ionization potential  
 (of hole transport material for organic electroluminescence device  
 containing aromatic diamine **light-emitting**  
 material)  
 IT Electroluminescent devices  
 (organic electroluminescence device with good hole-transporting  
 and **luminescent** property).  
 IT 151026-61-8D, alkyl derivs. 177799-15-4  
 205696-99-7  
 (organic electroluminescence device containing aromatic diamine  
**light-emitting** material)  
 IT 147-14-8, Copper phthalocyanine 65181-78-4 122738-25-4  
 123847-85-8 124729-98-2 134917-82-1 205697-02-5  
 (organic electroluminescence device having laminated  
 hole-transporting **layers**)

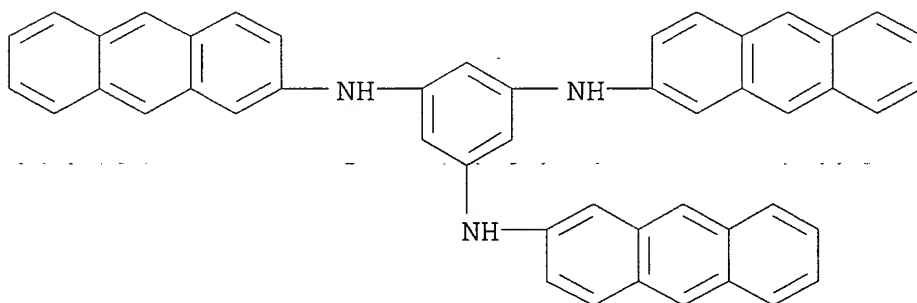
L40 ANSWER 65 OF 65 CAPLUS COPYRIGHT 2005 ACS on STN

-ACCESSION NUMBER: 1998:116627 -CAPLUS  
 DOCUMENT NUMBER: 128:146918  
 TITLE: Synthesis and properties of novel derivatives  
 of 1,3,5-tris(diarylamino)benzenes for  
 electroluminescent devices  
 AUTHOR(S): Thelakkat, Mukundan; Schmidt, Hans Werner  
 CORPORATE SOURCE: Bayreuther Institut Makromolekulforschung,  
 Universitaet Bayreuth, Bayreuth, D-95540,

SOURCE: Germany  
Advanced Materials (Weinheim, Germany) (1998),  
10(3), 219-223  
CODEN: ADVMEW; ISSN: 0935-9648  
PUBLISHER: Wiley-VCH Verlag GmbH  
DOCUMENT TYPE: Journal  
LANGUAGE: English  
AB In the frame of developing hole-transport and emitter materials having low ionization potentials and high Tgs the synthesis of derivs. of 1,3,5-tris(diarylamino)benzenes with different aryl substituents like biphenyl, naphthyl, and anthracenyl groups is described. The absorption, fluorescence, electrochem. behavior, and thermal properties of these materials were investigated. Some of these compds. exhibit no recrystn. at all upon cooling from their melts or on heating  $\geq T_g$  and form amorphous films by vapor deposition. Some possess emitting properties in the blue and green region, resp. in single-layer LEDs.  
IT 613-13-8, 2-Aminoanthracene 202477-56-3  
(preparation of derivs. of tris(diarylamino)benzenes for electroluminescent devices)  
RN 613-13-8 CAPLUS  
CN 2-Anthracenamine (9CI) (CA INDEX NAME)



RN 202477-56-3 CAPLUS  
CN 1,3,5-Benzenetriamine, N,N',N''-tri-2-anthracenyl- (9CI) (CA INDEX NAME)

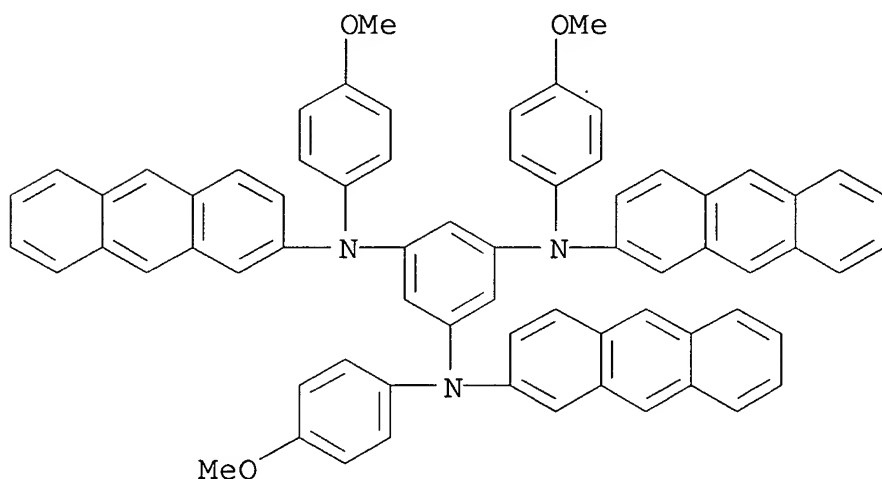


IT 189178-05-0P  
(preparation, UV/VIS absorption and fluorescence spectra, redox

potentials, HOMO energies, DSC data, and LED characteristics of)

RN 189178-05-0 CAPLUS

CN 1,3,5-Benzenetriamine, N,N',N''-tri-2-anthracenyl-N,N',N''-tris(4-methoxyphenyl)- (9CI) (CA INDEX NAME)



CC 73-5 (**Optical**, Electron, and Mass Spectroscopy and Other Related Properties)

Section cross-reference(s): 25, 76

IT Fluorescence

HOMO (molecular orbital)

**Luminescence**, electroluminescence

Redox potential

UV and visible spectra

(of tris(diarylamino)benzenes used for LEDs)

IT 90-14-2, 1-Iodonaphthalene 104-94-9, p-Anisidine 108-73-6,

Phloroglucinol **613-13-8**, 2-Aminoanthracene 696-62-8,

4-Iodoanisole 1591-31-7 2974-94-9, 4-Phenoxyiodobenzene

**202477-56-3**

(preparation of derivs. of tris(diarylamino)benzenes for electroluminescent devices)

IT 184895-05-4P 189178-04-9P **189178-05-0P**

(preparation, UV/VIS absorption and fluorescence spectra, redox potentials, HOMO energies, DSC data, and LED characteristics of)